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ACCURACY IN ROENTGEN DOSAGE

CHAIRMAN'S ADDRESS *

ARTHUR W. ERSKINE, M.D.

CEDAR RAPIDS, IOWA

Without some reasonably accurate method of determining dosage, the skill and experience of the physician who uses roentgen rays in the treatment of disease are useless. The action of the rays is slow and the effect is cumulative. It is much more difficult and dangerous to give repeated small doses of x-rays until the desired result is obtained than to give small but unknown doses of a potent drug that is quickly absorbed and rapidly eliminated. Accurate determination of the dose enables the roentgen therapist to avoid the dangers of overexposure and underexposure. The occasional tragic results of excessive irradiation have received such wide publicity and have been discussed so freely that physicians are inclined to forget that underdosage is a no less real menace to the welfare of the patient. I am convinced that the paitent with malignant disease is in much greater danger from underdosage and thereby of having withheld from him what may be his only chance for life than he is of receiving an excessive dose.

Errors of approximately 100 per cent are to be expected when the size of the skin dose is estimated from indirect measurements; that is, from measurements of the voltage, current, time, filter thickness, anode-skin-distance and size of field. This error can be brought down to about 25 per cent if the roentgenologist will reduce the variations in technical factors to the fewest possible number and have the intensity and quality of the x-rays produced by his standard technics checked at regular intervals by a physicist equipped with an accurate measuring instrument calibrated in absolute units. Such service is now available in many communities, and within the next year enough universities and other institutions will be cooperating with the United States Bureau of Standards so that it can be rendered throughout the country at a reasonable cost.

In the last decade the problem of measurement of the intensity and quality of x-rays by ionization instruments has received so much study that it is perhaps timely to inquire whether the measurement of each dose as and when given is accurate and practical enough to permit its universal adoption to be advocated. Ignoring the integrating instruments, which are still too delicate and complicated to be suitable for general use, the measuring instruments used in this country are of two kinds: those equipped with small ionization chambers and those with large chambers.

The small chambers usually consist of a thimble-shaped shell of aluminum, horn or graphite or other suitable material, into which projects a piece of carbon attached to the end of an insulated wire leading to the measuring instrument. When the chamber is exposed to x-rays, the electrical charge previously applied to the wire leaks across the ionized air to the grounded wall of the chamber. Small chambers have the disadvantage that the current through them is so small that it must be measured by a very sensitive instrument, such as a galvanometer, a gold-leaf electroscope, a string electrometer or a quadrant electrometer. The galvanometer gives direct readings but is so sensitive to jars and external influences that its use is hardly to be recommended to the roentgenologist. With the electroscope, the string electrometer and the quadrant electrometer, the rate of flow of the ionization current is determined by measuring with a stop watch the time required for the gold-leaf, the string or the aluminum blade to move through an arbitrary scale. The time required is inversely proportional to the intensity of the x-rays being measured. The scale of the instrument is sometimes calibrated directly in absolute units. The ionization chamber is exposed for a definite time, usually one minute, and the number of r per minute is read from the scale. Small chambers have the great advantage of being easily used for measurements directly on the skin of the patient.

Large ionization chambers usually contain two or more metallic or carbon coated plates. Since rather large ionization currents pass across them, a less sensitive measuring instrument can be used, such as a rugged galvanometer or a micro-ammeter. These instruments are read directly and, if the ionization chamber is permanently mounted in the path of the rays, they can be used as a constant check on intensity with no greater effort or loss of time than is required to observe a milliammeter. They are more convenient to use than the small chambers, but they measure x-rays as they are produced, instead of as they are received by the patient. They do not register the effect of back scattering, which is considerable, and a correction must be made for changes in the size of field and the anode-skin-distance. The readings on the measuring instrument may be changed by means of a conversion chart into international r per minute. Either type of instrument should measure the skin dose with an error not greater than 10 per cent. The accuracy of the determination of the dose received by a lesion within the body, which is done by distribution charts, depends on how definitely the lesion can be located. The error should not be greater than 25 per cent. Such a degree of accuracy in roentgen dosage compares rather favorably with that obtained in the administration of any drug, except by the intravenous method.

An objection is sometimes made to the routine use of measuring instruments, on the ground that the inter-

* Read before the Section on Radiology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 10, 1931.

national unit of dosage of x-rays, the roentgen, is not a perfect unit. This is perhaps true, and yet it is a much more rational and logical unit than many of those in use every day, such as the grain, the pint or the inch.

Because most of the measuring instruments were first described by physicists and engineers, an impression has been received that the skill of a physicist is necessary to operate them and that the use of the unit demands a high degree of mathematical ability. This is not true. The instruments are not as complicated as a watch or an automobile. We use our watches in spite of our ignorance of the physics of the compensating balance, and we drive our automobiles without much knowledge of the principles of internal combustion engines.

The use of measuring instruments is not expensive. If one spends $500 to purchase an instrument and maintain it for five years and, during that time, gives 100 treatments each year, the cost is only $1 for measuring each dose. If 1,000 treatments are given each year, the cost of measuring each one is reduced to 10 cents.

The routine use of measuring instruments calibrated in absolute units is, therefore, not such an expensive procedure as to be prohibitive and not so difficult that it is beyond the skill of the average roentgenologist.

120 Third Avenue, S.E.

THE ROENTGENOLOGIC STUDY OF THE DIAPHRAGM *

SAMUEL BROWN, M.D.
CINCINNATI

The roentgenologic study of the diaphragm appears to have been confined chiefly to the anteroposterior view of the thorax. This would suffice, provided the surface of the diaphragm would remain on the same level through its whole extent; but such is not the case. The

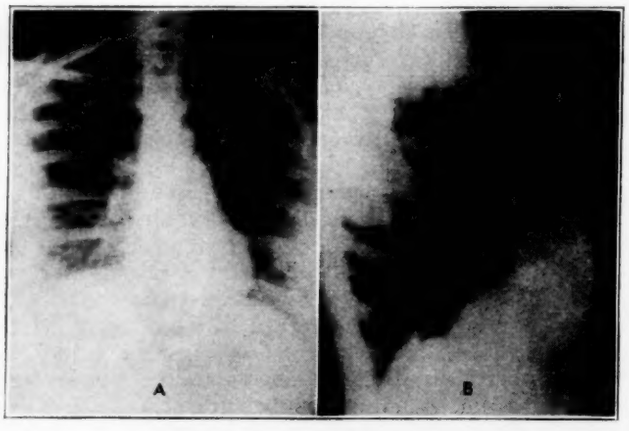

Fig. 1.—In *A*, the diaphragmatic domes are sharply defined; the right side is on a higher level than the left side. In *B*, the two arcs superimpose; the posterior half of the right side of the diaphragm is lower than the posterior half of the left side of the diaphragm, both posterior halves are lower than the anterior halves.

diaphragm slopes downward in its course from before backward. Thus a good deal of the posterior half of the diaphragm remains obscured from view. In order to make the whole of the diaphragm accessible to exploration, it became quite evident that a lateral view of the thorax should supplement the usual anteroposterior view. Having studied a large number of diaphragms in the two positions, I became quite convinced of their true value in recognizing abnormal conditions with greater accuracy than it was possible by the use of one position alone.

ROENTGEN ANATOMY OF THE DIAPHRAGM

In the anteroposterior view of the thorax (fig. 1 *A*) the diaphragm presents two sharply defined arcs, one on each side of the heart shadow. The right arc is on

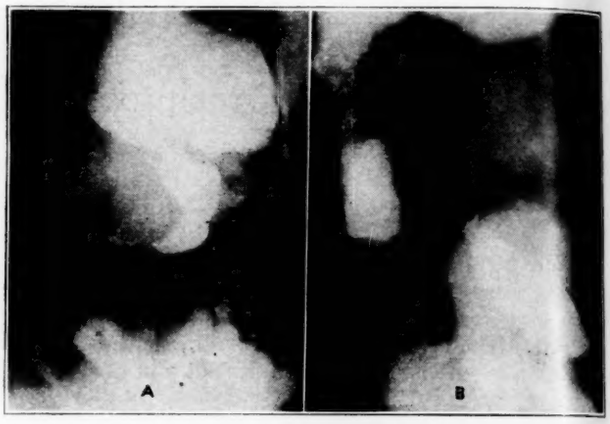

Fig. 2.—*A*, diaphragmatic hernia, showing a part of the stomach above the diaphragm; *B*, in the lateral view the protrusion is seen to have taken place through the esophageal orifice.

a somewhat higher level than the left arc. Between the two arcs the diaphragm is depressed by the heart and the pericardium, to which it is firmly adherent. Each arc presents two angles, the costophrenic and the cardiophrenic angle. Normally the latter is on a higher level than the former. Above, the diaphragm is covered by the pleura and the pericardium. Below, the diaphragm is covered by the peritoneum. Because of the marked difference in the penetrability of the structures above and below the diaphragm, the convex surface facing the lungs can be studied more accurately than the under surface, which covers the abdominal organs. When gas is introduced into the peritoneal cavity, the outline of the under surface of the diaphragm can be studied with equal facility.

In the lateral view of the thorax (fig. 1 *B*) two arcs are seen and are due to the right and left leaves of the diaphragm, which extend from the anterior to the posterior wall of the thorax. The anterior attachment is on a higher level than the posterior attachment. Contrary to what one would expect, the posterior half of the right diaphragm is usually on a lower level than the posterior half of the left diaphragm. The arcs are sharply defined, except where they are overlapped by the heart shadow, which obscures them to a more or less degree. Between the anterior and the posterior halves of the diaphragm there is a line of demarcation which originates behind the posterior surface of the heart shadow and terminates below the diaphragm and is due to the inferior vena cava. Behind the vena cava is the esophageal orifice and the opening through which passes the aorta. The latter is close to the dorsal spine.

ROENTGEN PHYSIOLOGY OF THE DIAPHRAGM

The function of the diaphragm is best studied fluoroscopically. Under normal conditions the diaphragmatic excursions of the two sides move in unison with their relative heights remaining the same. The extent of the mobility of the diaphragm depends on the

* Read before the Section on Radiology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 12, 1931.

position of the individual. Usually the excursions are greater in the recumbent than in the erect position. Since the diaphragm is both a voluntary and an involuntary muscle, the excursions will depend on the will of the individual. The movements may be entirely suspended at will for a shorter or longer period. On deep inspiration the diaphragm moves a greater distance at the periphery than centrally, where it is attached to the pericardium. Besides its respiratory function, the diaphragm forms a partition between the thoracic and the abdominal cavities, serving as a floor for the thorax and as a roof for the abdomen; but, unlike the usual conception of a rigid floor or roof, it is very flexible and responds readily to variation in pressure in the thoracic and abdominal cavities.

PATHOLOGIC CHANGES OF THE DIAPHRAGM

The diaphragm is seldom involved primarily but frequently is involved secondarily on account of its close relationship with the organs above and below it. The following abnormal changes are observed:

1. Anomalous conditions of the diaphragm.
2. Unnatural or natural openings permitting the protrusion of abdominal organs into the thoracic cavity.
3. Changes in the contour and shape of the diaphragm.
4. Changes in the position of the diaphragm.
5. Changes in the mobility of the diaphragm.

ANOMALOUS CONDITIONS OF THE DIAPHRAGM

Anomalous conditions of the diaphragm are of infrequent occurrence. The absence of the left leaf of the diaphragm was found but once in my whole experience, in an infant, aged 4 weeks. Because of symptoms indicating respiratory difficulty, the infant was referred for a roentgen examination of the chest with the clinical diagnosis of an enlarged thymus. The

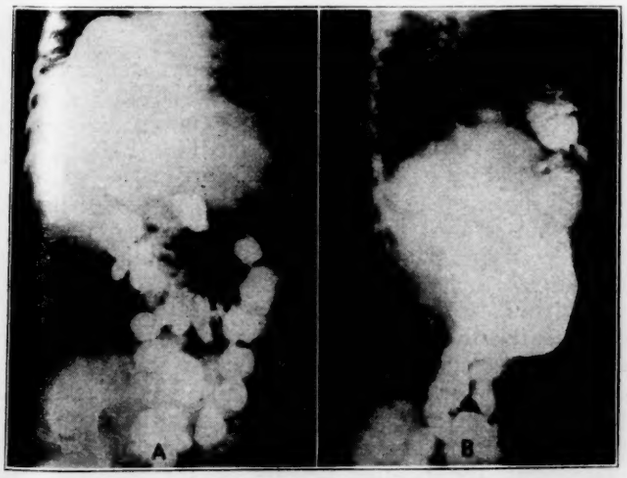

Fig. 3.—*A*, diaphragmatic hernia of colon on the right side; *B*, the protrusion of the bowel is seen to have taken place between the liver and the anterior chest wall.

roentgenogram revealed the complete displacement of the heart to the right side. The left side of the chest was occupied by pockets of gas of varying sizes. A barium meal showed the small bowels dislocated into the left thoracic cavity. A lateral view of the thorax showed only one leaf of the diaphragm.

Another infrequent anomaly is eventration of the diaphragm, which usually occurs on the left side. The fundus of the stomach is generally found greatly distended with gas, as occasionally is also the splenic flexure. The diaphragm is displaced high into the thoracic cavity, causing the heart to assume an abnormal position.

In cases of transposition of the thoracic and abdominal viscera the diaphragm is also found transposed, as evidenced by the reversed position of the orifices for the vena cava inferior and the esophagus.

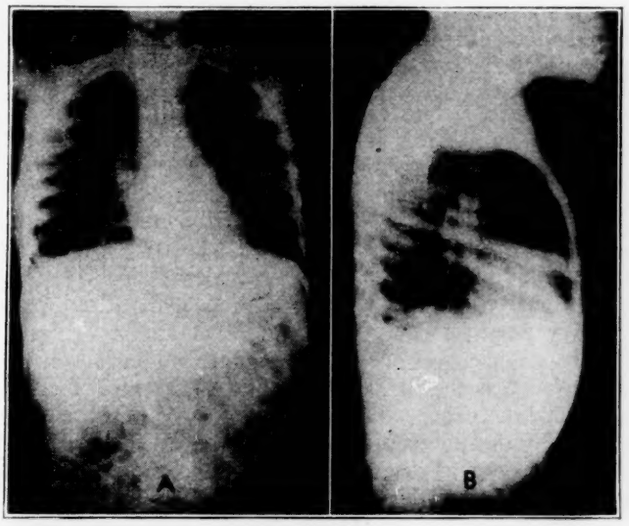

Fig. 4.—*A*, the anterior view does not present abnormal changes in the chest; *B*, the lateral view shows pleuritic infiltration above the posterior half of the diaphragm.

UNNATURAL OR NATURAL OPENINGS PERMITTING PROTRUSION OF ABDOMINAL VISCERA INTO THE THORACIC CAVITY

The most frequent type of diaphragmatic hernia is the one which passes through the esophageal opening. This type generally lies behind the heart shadow and is thus obscured from view. If no barium meal is administered, such a hernia may readily be overlooked. However, the study of the chest in the lateral position will often reveal an abnormal shadow consisting of a gas pocket which would lead one to suspect the presence of a hernia. After a barium meal, such a hernia is readily demonstrated, and by the use of the anterior and lateral views (fig. 2) the exact location is determined.

On either side of the heart shadow the presence of a diaphragmatic hernia can be suspected by the existence of unnatural shadows above the diaphragmatic domes. A barium meal or a barium enema will help to decide the exact nature of the shadow and, by means of the lateral view, to establish its exact location (fig. 3).

CHANGES OF SHAPE AND CONTOUR OF THE DIAPHRAGM

As a result of pleuritic adhesions, the shape and contour of the diaphragm may be found to be more or less distorted. Pleuritic effusions or pulmonary tumors may entirely obscure it. On the other hand, the presence of a pneumothorax or pneumoperitoneum will expose the surfaces of the diaphragm to view and any abnormal changes are readily demonstrated. The existence of a diaphragmatic pleurisy will be recognized by the presence of an infiltration above the contour of the diaphragm; but if this happens to be located above the posterior half of the diaphragm it may escape recognition entirely when viewed in the anteroposterior direction alone. Such a case is illus-

trated by figure 4. The anterior view failed to show anything unusual in the whole of the chest; yet in the lateral view there was found evidence of a pleuritic infiltration above the posterior half of the diaphragm.

The existence of pleuritic adhesions may be overlooked if one confines oneself to the anterior view alone. This is illustrated by figure 5. In the anterior view the left diaphragm is obscured by the heart shadow, which is somewhat displaced to the left. In the lateral view the posterior half of the left diaphragm is elevated and adherent to the posterior wall of the thorax. Its contour is poorly defined as a result of a chronic pleurisy.

CHANGES IN POSITION OF THE DIAPHRAGM

A change in the position of the diaphragm is one of the most frequent abnormalities encountered, and the correct interpretation is often quite difficult. Bilateral elevation of the diaphragm, due to increased intra-abdominal pressure, or bilateral depression of the diaphragm, which is usually due to generalized pulmonary emphysema, offers no difficulty in recognizing its true cause. However, the unilateral elevation or depression of the diaphragm requires greater effort to ascertain the exact cause of the abnormal position. By means of the anteroposterior and lateral views it was found that a differentiation between the numerous causes can be made with a great deal more accuracy than by the use of one view alone. When the elevation is due to intra-abdominal pressure, phrenic paralysis (fig. 6), atelectasis, or enlarged liver, the diaphragm is found elevated on the affected side, but the relation in the relative heights of the anterior or posterior attachments of the diaphragm remains the same. On the other hand, in case of subphrenic abscess the posterior portion of the diaphragm is found elevated and at times it may be found even higher than the anterior portion of the diaphragm (fig. 7). The

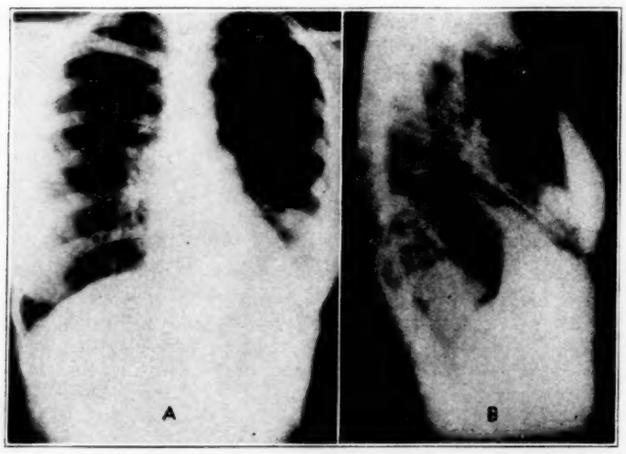

Fig. 5.—*A*, the anterior view shows the left side of the diaphragm to be obscured by the heart; *B*, the lateral view shows elevation of the posterior half of the left side of the diaphragm, which is adherent to the posterior wall of the thorax.

posterior costophrenic angle is usually obliterated and the tissues above it show evidence of inflammatory changes.

An instructive case, illustrated by figure 8, is as follows: A woman had undergone a breast amputation for carcinoma. Several years later she returned with symptoms which pointed to some abnormal changes in the lungs. A roentgen examination of the chest (fig. 8 *A*) showed a dense shadow occupying the lower two thirds of the right side of the chest, which was thought to be a pulmonary tumor. However, in the lateral view (fig. 8 *B*) the right side of the diaphragm is seen to be elevated. Evidently the tumor is below the diaphragm and must have originated from the liver.

CHANGES IN MOBILITY OF THE DIAPHRAGM

Changes in the mobility of the diaphragm are best studied fluoroscopically. The impairment of the

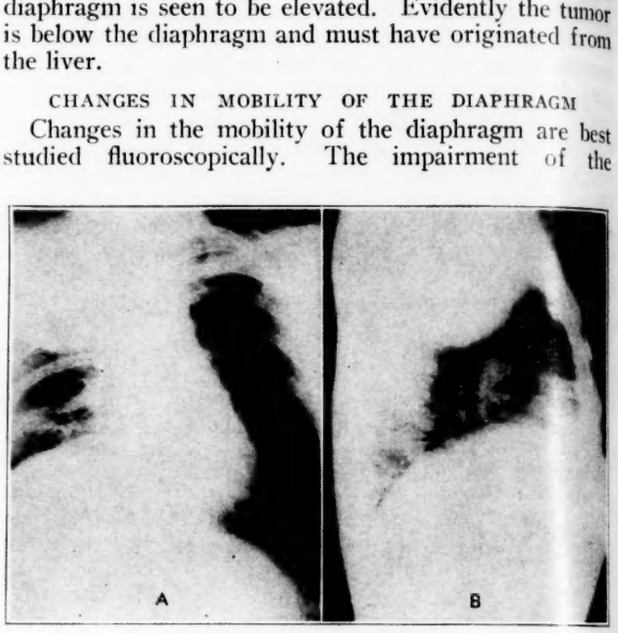

Fig. 6.—*A*, elevation of the right side of the diaphragm due to paralysis of the phrenic nerve as a result of a pulmonary tumor; *B*, the elevation of the right side of the diaphragm is general, but the relation of the anterior and posterior attachments remains the same.

diaphragmatic excusions may be unilateral or bilateral. As a rule, when the impairment is bilateral the cause is usually of a general nature, such as ascites, gaseous distention of the bowels, intra-abdominal tumors, or pulmonary emphysema. When the impairment is unilateral the cause is usually of a local origin, such as subphrenic abscess, diaphragmatic pleurisy, enlarged liver, pneumothorax, pleuritic effusions, or phrenic paralysis.

SUMMARY AND CONCLUSIONS

During the past few years an attempt was made to study the diaphragm in the anterior and lateral positions. This study enabled me to recognize lesions of the diaphragm which entirely failed to show in the usual anterior view, and when shown in the anterior view their exact location was possible to determine by the two positions. This study also revealed the fact that the right diaphragm, though on a higher level anteriorly, is actually on a lower level posteriorly than the left diaphragm. It was also found that the elevation of the diaphragm due to a subphrenic abscess usually takes place posteriorly. The diaphragm is then found either on the same level throughout or even higher than the anterior portion of the diaphragm. In other conditions in which there is elevation of the diaphragm, the relative heights of the anterior and posterior portions of the diaphragm remain the same.

707 Race Street.

ABSTRACT OF DISCUSSION

DR. J. V. GREENEBAUM, Cincinnati: It has been a source of great help to the pediatric service, both at the Jewish Hospital, and the Cincinnati General Hospital, to have Dr. Brown take these different views of the chest and to show the relative position of the diaphragm. When asked to discuss this paper, I looked up all that I could about the diaphragm, and strange to say most of the statements found have been that the diaphragm has been much neglected for the past sixty years. None of the textbooks that I saw stressed or mentioned the lateral view

of the diaphragm in this study. The only mention I found of a different position than the anteroposterior was one in which it was suggested that the child be held upside down to determine the presence or absence of a diaphragmatic hernia. Dr. Brown has emphasized that the roentgen study of the diaphragm shows that the right side in front is higher than the left side, and the right side in back is lower than the left side. Keeping these four positions of the diaphragm in mind, one can see how easy it is for anybody who is careful enough to take side views to show just the relation of the diaphragm to the organs in the chest and in the abdomen. Dr. Brown showed distinctly that a subphrenic abscess is the one condition that pushes up the posterior half of the diaphragm, making it appear in an abnormal relation to the anterior half. Again, I wish to call attention to the picture of the child showing a mass in the chest. The possibility of this being a tumor coming from the spinal cord was diagnosed only after a lateral view was taken. I wish to compliment Dr. Brown for calling attention to the importance of the lateral views of the diaphragm.

DR. H. K. PANCOAST, Philadelphia: The study of the lateral view of the chest, and particularly of the diaphragm, is not made as extensively as it should be. Those of us in medical centers who have roentgenograms sent to us with patients are disgusted by the lack of lateral views made. Often one sees an indefinite lesion in sagittal views, which has probably puzzled the roentgenologist who made the examination. When the lateral view necessary to clear the diagnosis is asked for, it is not forthcoming. It is just as important to make two views of the chest as it is to make two views of a fracture. That should be an axiom. The decision as to whether a lateral roentgenogram should be made or not depends on fluoroscopic observation. Incidentally, it is just as important to examine every chest case by fluoroscope as it is to make roentgenograms. The diaphragm in the chest, like the sella turcica in the head, is often the key to the whole situation. Many conditions cannot be diagnosed without a careful study of the diaphragm, especially fluoroscopically. I depend on it absolutely in my diagnosis of liver abscess. These patients must be examined in the vertical position and not horizontally. All have tilt tables now and can do this. One should never attempt to study the diaphragm laterally in the horizontal position because the diaphragm on the down side of the patient will always be higher up naturally than the diaphragm on the upper side of the patient. I was particularly

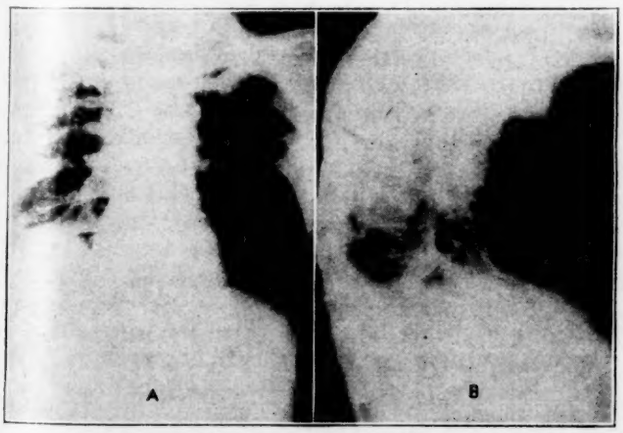

Fig. 7.—Subphrenic abscess: *A*, the right diaphragm is elevated; *B*, the posterior half of the right side of the diaphragm is higher than its anterior half.

interested in what Dr. Brown had to say about the diagnosis of perirenal abscess because this is the most difficult condition to differentiate from liver abscess. Unfortunately, most of our cases have not been those in which the diaphragm has been affected except by restriction of movement. The perirenal abscess will have to point upward in order to get the upward push of the posterior part of the diaphragm.

DR. KENNETH D. A. ALLEN, Denver: The diaphragm is the second most important muscle in the body. It lends itself extremely well to roentgen study. The air above makes a contrast which allows minute variations in the action of the diaphragm to show in fluoroscopic study and on the plate. The diaphragm is a membrane that stretches across the body cavity and that is delicate in its response to disease. It responds to disease above the diaphragm and it responds to disease in the abdomen. The diaphragm does not ascend in subdiaphragmatic abscess because it is pushed upward unless the abscess happens to be superimposed on an adherent liver. If the liver is not adherent, a subdiaphragmatic abscess causes the diaphragm to ascend because the phrenic nerve impulses to the diaphragm are interrupted. The inflammatory process inhibits the phrenic nerve terminations and thus the flaccid hemidiaphragm is bal-

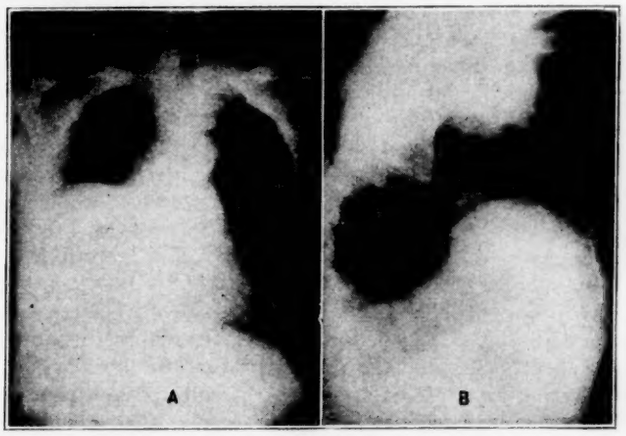

Fig. 8.—*A*, dense shadow of lower two thirds of the right side of the chest; *B*, the right side of the diaphragm is elevated. Evidently the tumor is below the diaphragm.

looned upward by abdominal pressure. I was interested in Dr. Brown's sign of subdiaphragmatic abscess and I should like to suggest a possible cause of the obscuration of the posterior sulcus, based on the idea that the diaphragm is flaccid from paralysis due to inflammation and thus the abdominal pressure, always working against the negative thoracic pressure, pushes the diaphragm up. Perhaps Dr. Brown's finding of obscuration of the posterior sulcus is due to the fact, especially on the right side, that the diaphragm is flaccid, the posterior attachment of the diaphragm is low, the inflammation causes paralysis, and the pus gravitates backward and downward and tends to press the flaccid diaphragm backward, thus obscuring the posterior sulcus. This is a valuable sign for which all should watch.

DR. LEON T. LE WALD, New York: I think we owe Dr. Brown a debt of gratitude for this presentation. However, I have used this lateral position for many years and published one paper in January, 1924, emphasizing the necessity of the lateral view of the chest and diaphragm in localization of foreign bodies and in localization of lung abscess. I have had the same experience Dr. Brown has mentioned of several cases in which a lung abscess has been approached from the wrong direction, and until the lateral view was taken the correct approach was not made. One patient was operated on twice by two different surgeons, one in Italy and one in the United States. Both failed to reach this lung abscess, although it was of considerable size. The lateral studies showed the proper approach well posterior, and both the surgeons had missed it, one going in front, and the other on the side. The same thing is true in foreign bodies. I know of two cases of foreign bodies in the chest that were at first approached from the wrong direction but were easily approached by careful localization of the foreign body by means of lateral roentgenograms. I should like to ask Dr. Brown whether it is possible to have a subphrenic abscess without its elevating the posterior part of the diaphragm. I could conceive of the anterior part alone being pushed upward.

DR. SAMUEL BROWN, Cincinnati: Regarding Dr. Pancoast's question I may say that it is quite possible that a lesion may exist under the diaphragm without producing an elevation of the diaphragm, but I would hesitate to make a diagnosis of a subphrenic lesion without a definite elevation of the diaphragm. I have not had any experience of the effects of a kidney abscess on the diaphragm, but I recall a case of a polycystic kidney which showed elevation of the posterior portion.

AN ANALYSIS OF THE SCHIZOPHRENIA PROBLEM FROM THE STANDPOINT OF THE INVESTIGATOR *

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BOSTON

Schizophrenia, representing, as it does, a distortion of the whole personality, offers a problem that is essentially coextensive with that of human psychology. Since the patient shows more or less characteristic deviations in his functional activities, the problem is also nearly coextensive with that of human physiology. To whatever extent specific pathology may prove to play a part in the psychosis, that field of knowledge, too, is involved. It is obvious, therefore, that any attempt to deal productively with the problem literally "as a whole" would be chimerical. The ineptitude of any such attempt is further indicated by the fact that no major problem in medicine has ever been solved in that way. To the practical investigator the actual problem presented is primarily one of strategy—of selecting an angle of approach that offers most promise of significant returns for the labor involved. He must deal individually with workable portions of the total problem.

In a research in this field the manifestations of the disorder at the physiologic level should receive first consideration. Several facts suggest the advisability of this approach. If, as many psychiatrists maintain, the mind-body antithesis is purely artificial, studies at the physiologic level are quite as "psychologic" as at any other. The physiologic level is the one on which clean-cut, objective, quantitative data are most easily secured and on which causality is most comprehensibly operative. Without subscribing to any simple conception of causality, one may note several lines of evidence that somatic factors play a primary rôle in schizophrenia. The fact that the disorder shows a predilection for offspring of "tainted" heredity and of special constitutional types can only mean that one or more physical "susceptibility factors" are operative. The mere fact that a patient is of a given physical constitutional type cannot account for his succumbing to a psychosis, except as gross abnormality may give rise to inferiority feelings. One can safely assume that it is the concomitant metabolic peculiarities that are significant. Finally, the remarkable difference in the double incidence of dementia praecox in identical as compared with ordinary biovular twins [1] is conclusive, so far as the adequacy of the data is conceded, that physical, i. e., metabolic, factors are of primary importance in the etiology of the disorder.

The fact that no single metabolic deviation has been recognized as characteristic of dementia praecox is no evidence against its physical causation. There is no known characteristic difference in the metabolism of a Negro and a Caucasian, but who doubts the existence of physical determinants of racial characteristics?

In a study of the physiologic status of the patient, cognizance may well be taken of the principle of homeostasis formulated by Cannon.[2] That principle is, in effect, that the introduction of any distorting factor into a physiologic system promptly brings into play mechanisms to resist the distortion. Biologic existence in a shifting environment is rendered possible only by the operation of such factors. Thus, exposure to cold results in a variety of activities primarily to limit the fall of body temperature and, as such primary mechanisms fail, secondarily to correct any fall of temperature produced. By the operation of such mechanisms, the body temperature is kept within relatively narrow limits of variation.

In general terms, one is confronted in the individual patient by two problems: (*a*) In what particulars and to what extent has his homeostatic control given way? and (*b*) What is the quantitative value, in a variety of respects, of what might be called the patient's homeostatic efficiency? The latter is to be investigated by the quantitative determination of the shift produced by the operation of an imposed quantitated distorting factor. It will be recognized that many "vital function tests"—for example, a carbohydrate test meal—are precisely this. One visualizes the ultimate possibility of expressing the general "vitality" of any given subject by a mathematical "homeostatic index," this to be derived algebraically from a fairly large number of weighted subindices. A related but distinct problem is whether the homeostasis may be primarily or secondarily organized at displaced (pathologic) levels.

As Novoa Santos [3] has recently pointed out, the mere presence of a given homeostatic distortion does not preclude the determination of the underlying homeostatic efficiency as regards the particular function in question. More specifically, he has described a technic for the determination of the latent reserve power of the islands of Langerhans in frank diabetes mellitus. This principle is of potentially large significance for the study of dementia praecox.

Widespread perturbations of physiologic processes are well known features in the disorder. Are these due to the operation of overpowering and long lasting distorting factors or to antecedent homeostatic inefficiency? In short, does the "inefficiency" "cause" the psychosis or does the psychosis "cause" the physiologic perturbations? The most fundamental aspect of the schizophrenia problem is implicit in these questions. Here may be found the constitutional liability factor that has been postulated by many psychiatrists. The prediction is ventured that dementia praecox will prove ultimately to be characterized by an abnormal homeostatic index.

Notwithstanding the desirability of giving attention primarily to the physical aspects of the disorder, however, the so-called psychologic aspects also demand systematic study. Despite the difficulty of dealing with them in a quantitative, objective way, it is only as psychologic factors can be treated accurately and objectively that they can be transferred from the field of art to that of science. In principle, as Meyerson has emphasized, it makes no ultimate difference whether a physiologic process—for example, salivary secretion—is arrested by a dose of atropine or by an unpleasant thought. The practical difference is, of course, that a dose of atropine can readily be quantitated. Difficult

* Read before the Section on Nervous and Mental Diseases at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 11, 1931.

1. Lange, Johannes: Zwillingspathologische Probleme der Schizophrenie, Wien. klin. Wchnschr. **42**: 1213 (Sept. 19) 1929.

2. Cannon, W. B.: Some General Features of Endocrine Influence on Metabolism, Am. J. M. Sc. **171**: 1, 1926; Organization for Physiological Homeostasis, Physiol. Rev. **9**: 399 (July) 1929.

3. Novoa Santos, R., and F. Mosquera Soute: The Reserve Incretory Capacity of the Pancreas, Endocrinology, to be published.

of control as psychologic factors admittedly are, numerous statistical complications are introduced if they are allowed to operate at random. An elaborate metabolic picture might be worked out ever so carefully for a given patient and yet this might be vitiated for direct comparative purposes if the psychologic factors in the determination of that picture were ignored. Such factors may be numerous and they are at best only partially controllable. This fact imposes the necessity of multiplying the number of data that must be secured, but in principle, and granting the adequacy of the data, this merely adds to the demands on the competency of the statistician who interprets them. The psychologic variables can be controlled to a considerable extent by rigidly standardizing the basic routine of the research service and introducing situational modifications in standard sequences or combinations. The fact that measurably predictable results from applied psychology can be obtained—as in the professional advertising field or in "religious revivals"—suggests that attempts to standardize psychologic procedures are not entirely without hope of success.

The major problem confronting the investigator in this field is to characterize more adequately the psychosis itself. The term "dementia praecox" is a notably loose one and may well comprehend numerous more or less independent syndromes. The term is, perhaps, comparable with the word "fever," which may signify pneumonia, typhoid, acute arthritis, or what not. It is believed that technics are now available for the definite characterization of the psychosis if it is an entity, or for the subdivision of the general group into valid subentities, if such exist. What is needed to these ends is the accumulation of an adequate number of quantitative data on the various aspects of the disorder, and sufficiently searching statistical elaboration of the data to permit recognition and segregation of the characteristic, as contrasted with adventitious, phenomena. Much more rapid progress in research is to be anticipated if one deals with entities as such. If or when the possibility is realized of segregating the general mass of schizophrenic patients into explicit subgroups, no doubt the strategic aspects of the problem will change. To use an analogy, when the territory has been carefully mapped and the significant bodies of ore have been located, then intensive mining operations can profitably be instituted.

The present-day literature on schizophrenia is defective in the number of accurate quantitative data that have been reported. But an even more significant defect is the lack of homogeneity of the data. They have been obtained by many investigators using different technics on a variety of patients living under dissimilar environmental conditions. In consequence, they are of but limited statistical utility. The same number of observations made under comparable conditions would be many fold more significant.

Although a research on dementia praecox should take account of numerous factors, for practical reasons the work can best be carried on as a series of subprojects. This procedure is advisable both because of the special utility of particular technics for particular investigations and because of the desirability of avoiding diffuseness of effort. Since, however, the same patients serve as subjects for the different individual studies, the availability of the various data for statistical elaboration is not impaired. The limiting factor in a research of this type is the convenience of the patient. Overfrequent annoyance of the subject with a variety of trying diagnostic procedures is undesirable; his recovery might be impeded thereby, and if he were kept in an overwrought condition, the various observations would not be representative. Actually, the number of procedures in which a given patient can participate without significant detriment must be determined in each case individually. It is not essential to insure statistical utility of the data that each patient be represented in all series of observations, provided systematic overlapping is practiced and an adequate number of individual observations are made.

*An Analysis of the Dementia Praecox Problem**

Etiologic Factors	Diagnostic Procedures	Therapeutic Procedures
Emotional conflicts Withdrawal of interest in environment and transfer to phantasy life Bad mental and physical habits Industrial and social maladjustments	Intimate personal histories Psychologic tests Personality studies Controlled observations Environmental analyses	Psychotherapy Reeducation Religious counsel Occupational therapy Industrial therapy Simplified environment Adjusted environment
Structural defects of body	Autopsies Biopsies Physical examinations Roentgen examinations Special tests	Adjusted environment Surgery Mechanical appliances Physical therapy
Defective brain metabolism	Carotid-jugular blood analysis	O_2 — CO_2 therapy Manganese Other metallic salts Gland therapy
Abnormal endocrine functions	Vital function tests Anthropometry Therapeutic tests	Gland therapy Roentgen therapy Diathermy Surgery
Autonomic nervous dysfunctions	Study of autonomic reflexes and reactions to test drugs	Sympathotropic and vagotropic drugs
Cardiovascular inefficiency	Efficiency tests	Symptomatic therapy Graduated exercise
Defective gastrointestinal functions	Dental examinations Roentgen examinations Test meals Stool analyses	Dental therapy Diet Catharsis Massage Enzyme therapy Bacterial therapy Surgery
Liver dysfunctions	Liver function tests	Bile salts Duodenal lavage Diet
Abnormal mineral metabolism	Urine, blood and stool analyses	Diet Salt therapy Gland therapy Heliotherapy
Disturbed acid-base equilibrium	Alveolar CO_2 CO_2 combining power of plasma p_H studies of blood and cerebrospinal fluid	Diet Salt therapy
Vitamin deficiency	Physical examinations Roentgen studies Therapeutic tests	Vitamin therapy Heliotherapy
Infectious and surgical disease	Routine examinations Blood sedimentation tests Roentgen examinations Blood cultures Blood analyses Special tests	Special therapy as indicated
Other metabolic diseases	Ward observations Special examinations and tests	Special therapy as indicated

* The study is initiated in each case with a social and medical case history and a detailed physical examination.

The question arises, Should a research program, at the current stage of progress, deal exclusively with problems of etiology or should therapeutics also receive attention? If schizophrenic guinea-pigs were available, the restriction of attention to etiologic factors might be expedient; but it is possible and more indulgent

to one's humane instincts to adopt as a primary controlling principle to work in every instance for the best interests of the individual patient. This can be done only by making available to him the therapeutic deductions from the tests for which he serves as subject. In many aspects of the research, too, the "therapeutic test" offers a valuable method of checking on the accuracy of the diagnostic studies. Indeed, in some cases the most practical primary experimental procedure is to introduce a therapeutic variable and to study the resultant effects, metabolic and otherwise.

From what is now known of schizophrenia, it would seem that the investigator should take account of at least sixteen categories of potentially important etiologic factors, with corresponding categories of diagnostic and therapeutic procedures. These are set forth in some of their more important aspects in the accompanying table. The probability is recognized that the accumulation of adequate data may permit the deletion of some categories and no doubt others may need later to be incorporated, but the series as they now stand give ample scope for an organized research program without being impossibly complex.

Such a project as that outlined might seem so overelaborate as to be impracticable. As a matter of fact, however, reduced to actual patient routines the plan appears much simpler. A considerable proportion of the procedures suggested are now in operation at the Worcester State Hospital [4] and four years of experience has led to the conviction that the proposed project is well within the range of the practical. Numerous difficulties of organization and of administration have of course been encountered, but none so far have proved to be insurmountable.

Nor is such a research project inordinately expensive. Careful estimates indicate that a complete research unit of 120 beds can be maintained at a cost not to exceed $200,000 a year in addition to the standard outlay for routine custodial treatment. This is less than the cost of dementia praecox in the United States for one fifth of one day. The annual devotion of a single day's cost to sound research would probably increase several-fold the world's total output of significant data.

The need for research in this field is exigent. The economic cost of dementia praecox in the United States alone is more than a million dollars a day. There are about 140,000 subjects of the disorder in hospitals and many at large. Each case represents a wrecked life and a grave social maladjustment. The disorder offers many promising individual problems for research. As a rough index of investigational activity on any given subject the number of articles published is significant. The *Quarterly Cumulative Index Medicus* for 1929 catalogues 675 articles in English on tuberculosis, 223 on cancer and even 34 on measles, whereas but 32 authors contributed to the periodical literature (in English) on dementia praecox in any of its aspects. These data permit no escape from the conclusion that research on dementia praecox, at least in this country, is being grossly neglected.

As Bryan has emphasized, the time is ripe for a more enlightened public policy. Much remains to be done in the education of the public to the advantages of hospital treatment of insanity, and in some parts of the country adequate provision for such treatment remains to be provided. Nevertheless, merely to build more hospitals to house more patients is not enough. More than palliation is needed. Something effective must be done to empty the hospitals we have. Whether this is best to be accomplished by preventive or by curative psychiatry may be debated. That more knowledge about dementia praecox is needed cannot be questioned.

Many another difficult problem has yielded to vigorous research. Our present ignorance justifies no one in assuming that the problem of schizophrenia is insoluble.

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4. The project is described in its major features in a series of articles: Hoskins, R. G., and Sleeper, F. H.: Endocrine Studies in Dementia Praecox: A Case of Hebephrenic Dementia Praecox with Marked Improvement Under Thyroid Therapy, Endocrinology **13**: 245 (May-June), 459 (Sept.-Oct.) 1929; The Thyroid Factor in Dementia Praecox, Am. J. Psychiat. **10**: 411 (Nov.) 1930.

ABSTRACT OF DISCUSSION

DR. FRANKLIN G. EBAUGH, Denver: I am very much in accord with this splendid presentation, especially the emphasis Dr. Hoskins places on the need for adequate and fundamental research in connection with the schizophrenia problem. The type of psychiatry having a fundamental basis on anatomy, physiology and psychobiology will flourish. In this era of public health and preventive medicine the sixteen categories for research that Dr. Hoskins has outlined appear to cover every angle of this problem. They are absolutely essential if one is going to accept psychiatry as a missing chapter in physiology, and, after all, every problem in clinical medicine at the present day depends on physiology. If one is going to study the individual as a whole it means that one must make comprehensive, complete studies along the lines of physiology, as Dr. Hoskins has outlined them. I like to look on schizophrenic problems in terms of genetic, dynamic relationships, where one is studying a whole individual as a reacting organism, where one is studying his personality assets, his physical make-up, his equipment from the point of view of emotions, instincts, habits, intellect. This whole individual is naturally meeting and adjusting to varying situations as he completes his life span. These situations, again, cannot be sharply demarcated. Physical processes, psychogenic upsets, organic upsets may occur in the series of clinical cases of schizophrenic reactions encountered in everyday hospital work. In certain cases it is known that toxic influences appear to be predominant. From the point of view of treatment they offer the best prognosis in many instances if psychogenic types of schizophrenia, and even organic types, are encountered, based on concepts of psychic infantilism, and so on. I should like to ask Dr. Hoskins one or two questions. First, with regard to his statement of a looseness of the term schizophrenia. Would it not be better if the more comprehensive and, I feel, the more accurate term schizophrenic reaction types should be used? I should like to ask whether he has made any place in his scheme of study centering round recent work on the hypothalamus as a metabolic center.

DR. EARL D. BOND, Philadelphia: If any one of the different batteries of tests that Dr. Hoskins suggests is singled out for discussion one vitiates his main idea, which is to apply all of them to certain individuals. There is no questioning the need for each state in the country to set aside some experimental station for the thorough study of its dementia praecox patients. The burden that they place on every state is always underestimated. Dr. Hoskins leans rather to a study of the physical than the mental factors, and I suppose it is true that no matter how much one studies this disease in its mental aspects the mental things discovered will never explain the condition on the physiologic level, and the physiologic level is open to experiment. Not much has been done about it one way or another. The functions of the body throughout the different manifestations of this disease have never been carefully followed. I doubt whether even the most simple of the reflexes has been studied throughout the whole course of a case of dementia praecox. How the patient is to be managed in undergoing this battery of tests interests me, and I should like Dr. Hoskins to describe a day's life of a patient who is to be subject to all these tests.

DR. H. G. WOLFF, Baltimore: Apropos of Dr. Freeman's remarks, and suggestions by Dr. Hoskins, I might say that the clinic at Johns Hopkins has established a reflex laboratory to study the physiology of the cortex. It is interesting to know that, following an amytal injection in an animal one does get, at the end, following the deep narcosis, a period of extreme excitability, during which the conditioned responses are greatly altered and greatly increased.

DR. HARRY STACK SULLIVAN, New York: The research attack at the Worcester State Hospital, of which Dr. Hoskins has here presented a formulation, stands, I think, all but unique among the state hospitals of the United States. I regard the problem as an even more urgent one than is suggested by the speaker's figures, feeling, from numerical data I have obtained from various state and governmental hospitals, that there must be well over 250,000 schizophrenic patients in the governmental group of the United States hospitals alone. The augmentation of the figures for economic cost of these mental illnesses thus adds even greater emphasis to Dr. Bond's remarks pertaining to the urgent desirability of at least limited support for research in schizophrenia by every state hospital service and by the United States government. It is rather shocking to realize that even in this most advanced nation we are spending enormous sums to house these patients and spending next to nothing to understand them, and thereby to organize a scientifically well founded program of prevention. I suppose that one must charge this stagnant situation largely to the lackadaisical attitude of most psychiatrists to the problems presented to them by victims of these illnesses. Besides the large institute recommended by Dr. Hoskins, I recommend the small institute in which the intensive preoccupation can be with sociopsychiatric, psychobiologic and interpersonal factors. It is impossible to assemble the vastly numerous but not infinite factors in this field to be studied in a group of more than ten or fifteen people. This sort of attack on the problem is therefore the special province of the small institute employing, say, seven or eight highly competent people in dealing with five or six schizophrenic patients. That the federal and state services are not supporting one or the other of this sort of research organization seems deplorable in the extreme.

DR. FRANCIS H. SLEEPER, Worcester, Mass.: There are so many questions which have been asked of Dr. Hoskins that he has requested me to try to reply to one; namely, the one Dr. Bond asked relative to the daily routine of these patients. The routine varies tremendously and depends entirely on what day a particular thing is being done. For example, if the patients are going through experimental psychologic tests on a certain day, other things have to be eliminated in the tests which may have a possible effect on those psychologic tests. If one is doing work on the Luria test, for example, which we are using in an attempt to gain access to the emotional life of some of these patients, it means the use of word association tests, determining the effects on the respiration, blood pressure, muscular tremors and muscular coordination, and the elimination of all conflicting tests. But, generally speaking, Dr. Hoskins is using a fairly normal institutional routine such as may be found in the ordinary progressive institution. Occupational therapy is being used; recreational therapy is being used. We definitely try to keep our experimental conditions constant, however, from day to day.

DR. ROY G. HOSKINS, Boston: Dr. Ebaugh suggests that the term schizophrenia is rather an unfortunate one; dementia praecox is still worse. I am quite willing to call it a schizophrenic reaction. As a matter of fact, I prefer that term, because I share in the conviction, I suppose, of every student, that it is a tremendously loose aggregation of things that I am referring to anyway. As to the question whether the hypothalamus is being taken into consideration, it definitely is in two or three of the subjects cited. A considerable share of all the vital function tests I am making are aimed tacitly at the hypothalamic region. The most recent topic that I have been considering is that of blood pressure. The textbook statements are usually that the blood pressure is lowered. Occasionally one finds a textbook author who will say that it is uninfluenced or elevated. One can search through the literature of the world in vain to find one single satisfactory paper on blood pressure in schizophrenia. I am delighted to have Dr. Sullivan's reinforcements on statistics. I have systematically taken the most conservative figures. I derived the figure of 140,000 praecox patients by going to the 1923 United States census reports and determining the proportionality factor and applying that figure to later statistics. I also have derived proportionality figures from perfectly good statistics, which will bring the number up quite as high as Dr. Sullivan mentioned. So far as the cost is concerned, that also is highly conservative at $1,000,000. I am convinced that the cost runs over $2,000,000 a day in this country alone. Taking Brown's figures for New York, in which he attempted to estimate the cost of hospitalized patients alone, on a basis of net worth, the figure applied if constant on the United States population as a whole, 101,000,000, would come out about $1,500,000; and in his compilation no account was taken of the praecox patients that are at large. I am in sympathy with the suggestion that small institutes be established for the study of this problem. The small institute can make the type of experiment which cannot be managed in a larger project of this sort; namely, rigidly controlling everything else and making a crucial experiment on some one factor. I want to leave one question with you: What would any large industrial company which is managed on an efficient basis do if it found a net loss in the running operations of $1,000,000 a day if there were any chance whatever that this loss could be substantially reduced? The answer is obvious. I should say that we might well go and do likewise.

MATERIAL FROM LIVER ACTIVE IN PERNICIOUS ANEMIA

FURTHER OBSERVATIONS *

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Since the demonstration by Minot and Murphy [1] of the efficacy of a diet rich in liver in the treatment of pernicious anemia, efforts have been made to isolate the substances in liver responsible for these therapeutic effects.

Various properties of the antianemic material have been determined by several workers [2] and last year amorphous barium derivatives and crystalline quinine derivatives of nitrogenous acids were obtained from liver which were followed by positive responses when given intravenously or subcutaneously to patients suffering from pernicious anemia. Doses of from 200 to 250 mg. were followed by maximal reticulocyte responses and a definite increase of both red blood cells and hemoglobin, the effects of a single dose lasting from two to three weeks.

From the barium derivatives after hydrolysis two amino-acids have been isolated, β-hydroxyglutamic acid and γ-hydroxyproline, and a quinine salt has been obtained the properties of which suggest that it is a peptide of these acids.[3] It is of interest that β-hydroxyglutamic acid, which is a dibasic straight carbon chain acid, readily parts with one molecule of water forming a pyrrolidonecarboxylic acid, while hydroxyproline con-

* From the Department of Medicine, Columbia University College of Physicians and Surgeons, and the Presbyterian Hospital.

* Read before the Section on Pharmacology and Therapeutics at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 12, 1931.

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2. Cohn, E. J.; McMeekin, T. L., and Minot, G. R.: Proc. Soc. Biol. Chem. **7**: 49, 1930. West, Randolph; and Howe, Marion: J. Biol. Chem. **88**: 427 (Aug.) 1930.

3. West and Howe (footnote 2). Dakin, H. D.; West, Randolph; and Howe, Marion: Proc. Soc. Exper. Biol. & Med. **28**: 2 (Oct.) 1930.

tains the pyrrolidine ring. Recently Dakin [4] has isolated a quinine salt of a tribasic acid from liver which contains the pyrrolidone ring and which is converted when heated with baryta into a monobasic pyrrole acid and finally a pyrrole base. In large doses of 800 mg. mild reticulocyte responses have been obtained in two cases of pernicious anemia on injection of this tribasic acid. The structure tentatively adopted for this acid is in close relationship with the pyrrole derivatives which have been isolated from hemin, the iron porphyrin, which has been synthesized by Hans Fischer,[5] which is the nonprotein portion of hemoglobin. Closely related porphyrins occur in chlorophyll and in cytochrome,[6] the respiratory pigments of plants and unicellular organisms.

The chemical evidence at present available suggests that material from liver active in pernicious anemia consists of one or more pyrrole precursors, which may be utilized by the body in the formation of hemoglobin and possibly other cellular respiratory pigments. It must, however, be emphasized that, although clinical activity has been present after two and three recrystallizations of these quinine salts, the possibility of the presence of highly potent adsorbed material can be wholly excluded only when these products have been synthesized.

This conception of the function of liver feeding in Addison's anemia raises several points of both theoretical and practical interest. There is a great loss of active material entailed in chemical purification by present methods. Maximal clinical responses of the purest preparations have necessitated the intravenous use of material derived from approximately 40 Kg. of liver, while Castle and Taylor [7] have obtained similar responses with a less refined intravenous preparation derived from 100 Gm. of liver, an amount wholly inadequate when given by mouth. This observation implies either poor gastro-intestinal absorption or considerable destruction in the intestine, probably by bacteria. It is of interest that the pyrrolidone ring, which is present in the substances that have been isolated to date, is readily destroyed by bacterial action,[8] while the rings of the other cyclic amino-acids are relatively resistant. The blood picture simulating that of Addison's anemia found in partial intestinal obstruction and in infestation of the intestine with *Bothriocephalus latus* may well depend on destruction of the active material by bacteria or parasites.

The relationships of hematoporphyrin containing two acid groups, of coproporphyrin containing six, and of uroporphyrin containing eight is of great interest, and the isolation of a tribasic acid [4] which parts under proper conditions with its acid groupings finally yielding a pyrrole base suggests that analogous reactions may take place in the body and that they may form the basis of the conversion of blood into bile pigments, and again raises the question as to whether bile pigments may act as a source of blood pigments.

The amount of hemoglobin appearing in response to a given dose of highly purified material is greater than expected, if it is assumed that one is dealing simply with a pyrrole precursor. On this assumption the hemoglobin appearing in terms of the reticulocytes produced is about four times as great as expected if all material injected were converted into the pyrrole groupings of hemoglobin.

Several possible explanations have been suggested—that only some of the pyrroles of hemin are supplied by injected liver material, or that the injected material enables hematoporphyrin to combine with iron and globin—but evidence as to their validity awaits further investigation. From a consideration of the clinical and pathologic picture many workers have felt that hemoglobin is available in adequate amounts in pernicious anemia and that red cell stroma is lacking, but the chemical evidence available does not support this interpretation.

The clinical activity of the material from liver has been judged by the reticulocyte response, and there has usually been an accompanying sense of well being and an increase in red blood cells and hemoglobin. It has not been practical to make sufficient amounts of material to form any opinion as to whether it influences the spinal cord lesions of this disease favorably. The chemical evidence does, however, suggest a possible connection between the lesions of the spinal cord and the blood.

Warburg [9] has shown that the absorption spectrum of the respiration ferment of yeast cells is almost identical with that of hemin, indicating that the respiration ferment is a closely related substance. This ferment is essential to cellular respiration, and the material in liver active in pernicious anemia may well be a precursor of it. The oxygen consumption of nerve tissue is very high, so that it is possible that the cord lesions of Addison's anemia may be dependent on inadequate respiration ferment—in short, both blood and cord lesions may thus be related to a deficiency of hemin precursors. Evidence of the correctness of this hypothesis will depend on the response of cord lesions to treatment with adequate amounts of purified material.

The observation of Suzman and Ungley [10] that the feeding of raw brain to patients with pernicious anemia is followed by reticulocyte responses about one third as great as those obtained with liver indicates that the active material is present in nerve tissue.

Raber [11] has grown corn plants in nutrient solution in the dark and finds that the addition of liver extract to the solution produces much greener plants. This greater chlorophyll production may well depend on the presence of a precursor of chlorophyll in the extract.

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ABSTRACT OF DISCUSSION

DR. DAVID L. DRABKIN, Philadelphia: Since liver extract contains a high content of iron and copper, one would expect it to be effective in the secondary anemia of human beings. Nevertheless it is not effective. Therefore there are features therapeutically that perhaps may make one consider the milk anemia of rats, in which liver extract is effective, as a somewhat different entity from other forms of anemia. I at first prepared synthetic diets that I felt were lower in copper than was milk, and I transferred rats with anemia produced by an exclusive milk diet, at the height of their anemia, to these synthetic rations. I found that the rats recovered exceedingly rapidly on the synthetic diets containing albumin as the source of protein, much more rapidly indeed than they recovered when

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I merely added iron and copper to milk. Since the proteins in milk and the synthetic diets were different, I was led to investigate the value of adding purified amino-acids to milk in addition to a small amount of iron, which in itself was inadequate for the relief of the anemia. Thus far I have found that arginine and glutamic acid and their salts are highly effective in this anemia. I have found tryptophan and proline somewhat effective. The latter is interesting, owing to the fact it is a pyrrole derivative prepared in a simple way from glutamic acid. I have also found succinic acid and succinimide derivatives of amino-acids somewhat effective. On the other hand, I found that alanine, lysine, leucine and cystine were ineffective. I recently found the amino-acid tyrosine to be effective. Tyrosine, unfortunately for the present, obscures the picture of pyrrolegenesis. It may be that somehow tyrosine is transformed, but all the derivatives, besides tyrosine, which I have found effective might be considered as capable, at least theoretically of yielding pyrrole groups in metabolism. I am not at all certain so far that the organic substances are useful in rat anemia only because they are pyrrolegenic. It may be, for example, that amino-acids promote a better utilization of substances, either organic or inorganic, from the intestine.

EPITHELIOMA OF THE FACE

TREATMENT AND SUBSEQUENT SURGICAL RECONSTRUCTION *

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Complete, primary removal of epitheliomas of the face, regardless of their apparent inactivity or the resultant postoperative deformity, should always be carried out, on account of their potential malignancy. When these lesions have been treated by escharotics or radiation and have healed, many of them break down as more active growths; then fixation to the deeper tissues, involvement of cartilage and bone, and sometimes metastasis, take place. To delay radical removal of such growths until radiation and conservative treatment have been tried repeatedly, frequently changes the lesion from a minor one, which could have been removed by a simple method, to one the removal of which produces marked deformity and which requires secondary reconstructive procedures if it does not recur.

TYPES OF EPITHELIOMA

Epitheliomas of the face may be divided, clinically, into four groups: (1) the inactive type; (2) the active type; (3) those with involvement of cartilage and bone, and (4) carcinoma of the lips.

The most common epithelioma about the face is the inactive, or basal-cell, epithelioma (figs. 1 and 2). However, epitheliomas may start as more active lesions; they may be mixed basal-cell and squamous-cell epitheliomas or squamous-cell epitheliomas from the onset. These lesions may be of any type, from an inactive basal-cell epithelioma to a squamous-cell epithelioma, graded 4 (figs. 3 to 8).

The effect of inefficient treatment on the character of the lesion is demonstrated by the fact that basal-cell epitheliomas which have been only partially removed by some type of treatment, such as application of an escharotic or of radiation, have stepped up in activity so that they have changed to a squamous epithelioma of active type.

Epitheliomas of the face usually occur above a line drawn through the angles of the mouth. A review of 250 unselected cases of epithelioma of the face was made to determine the situation of the various types of lesions in the upper two thirds of the face. The face was divided by a line that corresponded with its median line. Then, on one of the halves so made, three zones were set off by drawing two lines perpendicularly; the first line passed through the center of the pupil, and the second was halfway between the first line and the ear. It was noted that the majority of the inactive lesions tended to be in the anterior, and the active lesions in the posterior, portion of the face. This is illustrated in the accompanying table.

Epitheliomas that involve cartilage or bone may be of the squamous-cell or of the basal-cell type; usually they have been subjected to much irradiation and on this account are more difficult to cause to clear up. They may be situated about the forehead, the nose, the inner canthus and orbit, or about the ear, where there is very little subcutaneous tissue. When recurrence takes place, they are attached to the skeletal tissues, and frequently they spread along the perichondrium or the periosteum.

A review of twenty-nine cases of epithelioma of the face, with involvement of cartilage and bone, reveals the fact that most of these lesions (55 per cent) occurred in the anterior zone, where the lesions are predominantly basal-cell epitheliomas. This is probably due to temporizing methods of treating these inactive lesions.

Carcinomas of the mucous membrane of the lips are all of the squamous-cell type, and all except those graded 1 may metastasize to the neck. The local lesion usually is of secondary importance as far as prognosis is concerned.

TREATMENT

The treatment of epitheliomas of the face must, of necessity, depend on the activity of the lesions, and, for all lesions of low grade, excision is the treatment of choice. This may consist of a knife or cautery excision and closure of the wound; possibly a minor plastic operation will be performed, or the removed portion may be replaced by a full-thickness skin graft or a pedicled flap. If lesions of low grade can be widely excised, immediate repair is justified, on account of the little likelihood of recurrence. For very small lesions about the nose, eyelids and ears, removal by means of desiccation or diathermy is the most efficient method.

The larger, more active lesions can be removed by excision with the cautery or by surgical diathermy; thorough destruction should be accomplished, wide of the involved portion. Lesions in which there is involvement of cartilage and bone present difficult

Situations, in Percentages, of Various Types of Epitheliomas of the Face

Type of Growth	Anterior Zone	Middle Zone	Posterior Zone
Basal-cell epithelioma	50.6	31.6	17.7
Basal-cell and squamous-cell epithelioma graded 1	28.5	54.7	16.6
Basal-cell and squamous-cell epithelioma graded 2	16.6	50.0	33.3
Squamous-cell epithelioma graded 1	18.1	63.6	18.1
Squamous-cell epithelioma graded 2	18.9	37.8	43.2
Squamous-cell epithelioma graded 3	25.0	18.7	56.2
Squamous-cell epithelioma graded 4	25.0	25.0	50.0

* From the Section on Laryngology, Oral and Plastic Surgery, the Mayo Clinic.

* Read before the Section on Surgery, General and Abdominal, at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 11, 1931.

problems, for most of them have undergone a great deal of irradiation. The growth that is visible can be removed by surgical diathermy, but frequently regions that have been irradiated are lying dormant, only to become active later and to appear as recurrent growths. The chronic, indolent ulcer, which may follow irradiation of these lesions, as a rule will give evidence of a malignant condition at the margin if biopsy is obtained, and very wide destruction is essential in these cases if recurrence is to be avoided.

Fig. 1. — Inactive basal-cell epithelioma.

Fig. 2 (same case as figure 1). —Basal-cell epithelioma was excised and replaced with full-thickness skin graft.

Early cases of carcinoma of the lower lip are best taken care of by wide excision of the local lesion, followed by removal of the submental and submaxillary lymph nodes. At present, because of the fact that so many of these lesions are being treated by other methods, we are seeing a much larger percentage of cases than we saw ten years ago, in which we find it necessary to remove a portion, or the greater part, of the lip by cautery excision or diathermy, thus causing marked deformity. In many of these cases the periosteum of the lower jaw is involved; it is necessary to destroy this by surgical diathermy, and a sequestrum results. The submental and submaxillary lymph nodes are removed at a second operation. If lymphatic involvement is demonstrated in a fresh frozen section, then block dissection is done on that side. For lesions of a high grade of malignancy, radiation may be used in addition to surgical measures.

Results in treatment of epitheliomas of the face, other than in cases of recurrence with involvement of cartilage and bone, are usually good. In the cases reviewed, including those of both the inactive and the active group, without involvement of cartilage and bone, there was no recurrence in 93.4 per cent. There was recurrence in 6.4 per cent, and two patients ultimately died of the disease. Of patients with involvement of cartilage or bone, 78.2 per cent were without recurrence; the average period of observation was twenty-six and five-tenths months. Recurrence occurred in 21.7 per cent; the disease ultimately caused death in three cases.

RECONSTRUCTIVE SURGERY

In all cases of epithelioma of the face in which bone is involved, it is necessary to remove sequestrums a month or so following the operation. After the wound is completely healed it is best to wait at least nine months to a year before reconstructive operations are attempted, on account of the possibility of recurrence; the length of time that it is necessary to wait depends on the type of lesion and on its activity.

Following the removal of epitheliomas of the forehead, exposed areas of bone frequently are left uncovered by periosteum. In such cases, small holes can be drilled in the outer plate of bone to allow granulation tissue to come through, and, after this area has been covered with granulations, a flap can be moved across it, with the pedicle high in the scalp. This method was suggested by C. H. Mayo.[1]

Another method consists in removing the bone by means of a chisel and bone forceps and then sliding a flap across from the opposite side of the forehead, with the pedicle in the scalp. The area from which the flap was taken is covered by a full-thickness skin graft.

Full-thickness skin grafts have certain definite advantages in covering the sites of large epitheliomas of low grade. In regions where it is possible to bring about immobilization and where a clean wound can be obtained, a great deal of time can be saved for the patient. If patients have very thin skins, the grafts sometimes are practically normal in color, whereas, if patients have thick skins, the grafts at times become pigmented and have a dirty, yellow color which is noticeable. We use these grafts for correcting ectropion of the eyelids. The portion to which the graft is to be applied should be a fresh, clean wound and perfectly dry. When a ligature is necessary to control bleeding we use fine, split silk. The graft, as a rule, is taken from behind the ear, where the color and texture of the skin is much the same as that of the skin of the face. The larger grafts are taken from inside the arm, care being taken that they are free from fat, and are removed by sharp dissection. They are made the same size as that of the area to which they are to be applied; a pattern is used, and the graft is carefully sutured in place by interrupted and mattress sutures. Pressure is applied for at least ten days, and gauze and adhesive plaster are used to hold the graft firmly in place. The experimental and clinical work of Davis [2] in the transplantation of skin, has been outstanding.

Fig. 3.—Squamous-cell epithelioma, graded 3, involving the zygoma, malar bone and lower jaw, after conservative treatment.

Fig. 4 (same case as figure 3). —Patient eight years after destruction with diathermy of squamous-cell epithelioma; the saucer-like deformity may be noted; recurrence did not take place.

It is impossible to present in detail the many types of flaps used to replace parts of the nose, eyelids and lips. In replacing large portions about the face, pedicled flaps have certain advantages; the color is usually much

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better than when free, full-thickness skin grafts are used. In the reconstruction of the nose or upper lip of a woman, the forehead is the ideal region from which to derive the flap. In such cases, the angular artery may be used as the main blood supply, or, if the pedicle is in the temporal region, the superficial temporal artery may be employed. If flaps are to be moved any considerable distance, delay is interposed, either by the method of Perthes,[3] and Blair,[4] or by use of a tube flap of the Gillies [5] type.

Fig. 5.—Deformity of the nose, lower eyelid and cheek after destruction with diathermy of squamous-cell epithelioma secondary to lupus; there was ectropion of the lower eyelid.

Fig. 6 (same case as figure 5). —Correction of deformity by lined forehead flap with the pedicle in the left temporal region.

Lining of the pedicled flap is essential in reconstructing a nose.[6] The lining of the ala and columella are formed by turning in the skin, as suggested by Nélaton.[7] Lining of the upper part of the nose, which will form the bridge, is accomplished by use of a full-thickness skin graft inserted under the flap at the time of the primary operation.

In reconstructing a large portion of the cheek or lip, it is essential that the flap be lined. We usually accomplish this by means of a full-thickness skin graft inserted under the distal end of the flap at the time of the first elevation. Pickerill,[8] in reconstructing an upper lip secondary to an epithelioma, used two flaps: one, the pedicle of which was in the temporal region, extended over the scalp; the other was brought up from the thorax as a lining. He feels that the tissue from the thorax produces a pink, smooth lining which simulates mucous membrane much more closely than a free, full-thickness skin graft. In correcting partial loss of the upper lip, Smith [9] has used a flap from the remaining portion of the upper lip as a lining, and a flap from the skin of the cheek as a covering. In cases in which there is much loss of tissue, we prefer the tubed flap, brought up from the thorax; however, in some cases, the skin of the back is such that it can be used, or the inside of the arm can be employed as the source of a pedicled flap. As a rule, the Italian methods of obtaining tissue are not satisfactory, for the casts and splints used to hold the arm up in the necessary position about the face are not tolerated by most patients.

In using pedicled flaps from the thorax, the upper pedicle should be below the collar line and the length of the flap not more than two and a half times its width. After making a tubed flap, we prefer to wait three months before transferring it to its new position. This insures the blood supply and is a safeguard against infection. The length of time between the stages in these cases depends on the nature of the skin and the blood supply which the patient can furnish. Some patients require two or three times the length of time that others require for reconstructive surgery. If skeletal support is necessary, cartilage from a rib is best suited for the nose or for other portions about the face, whereas, in reconstructive surgery of the jaw, bone may be taken from the crest of the ilium.

Patients on whom major plastic operations on the face have been done are requested to return in six months from the time of completion of the operation, for many of them require secondary operations to smooth out the scars and to remove superfluous tissue.

SUMMARY

Primary complete removal of epitheliomas of the face by surgical measures, including surgical diathermy, is the treatment of choice.

For treatment of inactive lesions, the growth may be excised or removed by surgical diathermy; removed tissue may be replaced by a full-thickness skin graft or a pedicled flap, at the time of the primary operation.

Active lesions, frequently recurrent lesions, and regions which have been subjected to radiation with involvement of cartilage or bone are best destroyed with surgical diathermy, the deformity being disregarded. Reconstructive surgery should be delayed for at least nine months to a year.

The gland-bearing fascia which drains the primary lesions should be removed in cases of carcinoma of the lower lip.

Fig. 7.—Loss of part of the left upper and lower lips and cheek with complete ankylosis of the jaw from secondary scarring, following removal with diathermy of squamous-cell epithelioma, graded 2; the tubed flap of the thorax is shown.

Fig. 8 (same case as figure 7). —Reconstructed tissues shortly after removal of sutures. It was necessary to line the entire inside of the cheek back to the commissure between the upper and lower jaws in order to correct the ankylosis.

3. Perthes, quoted by Smith, Ferris: Total Rhinoplasty, in Contributions to Medical Science, The Aldred Scott Warthin Anniversary Volume, Ann Arbor, Mich. George Wahr, 1927, pp. 601-612.
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ABSTRACT OF DISCUSSION

DR. GEORGE M. DORRANCE, Philadelphia: This exhibit shows that early treatment of epitheliomas, basal cell tumors, or whatever one calls them, is necessary to prevent destruction. I have long felt that whether one removes them by radium or by diathermy they should be covered immediately by a flap. Probably that will be regarded as radical, but the records are showing entirely too many recurrences from just plain local treatment without covering up the scar. I am using a flap in all my cases except those around the lower eyelids. Particularly if one puts radium around the ear where the cartilage will become affected by radium, one has a great deal of trouble and the tumor is prone to recur. I take them out, put a flap over the wound and have fewer recurrences. On basal cell tumors I do it immediately, differing from Dr. New; I also do it on the squamous cell tumors, which I cover within a few weeks, or as soon as conditions allow. I get recurrences, but they are less numerous than if I let the scar go for eight or nine months before covering up. I cover basal cell tumors as soon as possible, because I know they will give a larger percentage of nonrecurrences. I also cover squamous cell tumors long before eight months, because I get a higher percentage of cures if I cover the area early instead of disregarding the granulated area with the secretion that comes from the wound, and the irritation there. If I do not cover them up I get recurrences under them even after eight months. After covering them, I apply roentgen or radium treatment, particularly radium, to the areas drained by these epitheliomas, whether they are basal cell or otherwise. If one will follow carefully a large series of cases, say fifty, it is surprising how many metastases will occur. When they do occur it is too late. I have been able, I believe, to prevent a number of these secondary metastases by applying radium to the surrounding area.

DR. J. SHELTON HORSLEY, Richmond, Va.: About eleven years ago I noticed that, if a transplant was made of a flap taken at a distance from the region of an excised basal cell cancer, it seemed to have an inhibitory effect on the recurrence of the cancer. A basal cell cancer practically never metastasizes, whereas a squamous cell cancer does. There must be a reason for this. It seems probable, though it has not been demonstrated as an actual fact, that a basal cell cancer, in order to grow, must destroy something that is inhibitory in its adjacent tissue. For instance, if we have a lot with dry broom-sedge—which would be squamous cell cancer—we can start a fire anywhere in the lot, but if it is damp it has to dry out around the margin of the fire in order to spread. That would be basal cell cancer. This seems to be true because basal cells are just as small as squamous cells and they doubtless enter the lymphatics as the cells of squamous cell cancer do, but they apparently arrive in a nonreceptive area. By transplanting a flap from a distance with this inhibitory power unimpaired, one establishes an inhibitory influence on the recurrence of the basal cell cancer. How deep this extends it is difficult to say, probably only a fraction of an inch. But after removal of the basal cell cancer thoroughly, this effect seems distinctly desirable. About the same time I was considering this, I saw an interesting case reported by Dr. Phemister in which he had done an extensive operation of excision of a basal cell cancer and had transplanted a flap from a distance for cosmetic reasons. The cancer recurred all around the margins of the flap, the flap being practically an island of healthy tissue in a sea of recurrent basal cell cancer. So far as the squamous cell growths go, this inhibitory effect from a distant flap does not exist; but in making the continuance of an inflammatory irritation from a raw surface impossible, a flap may have some beneficial effect.

DR. GORDON B. NEW, Rochester, Minn.: Several years ago Dr. Horsley suggested using a flap in these cases. I think it is quite all right to use one in the low-grade lesions, but in the squamous cell epitheliomas, following a great deal of irradiation, I feel that it is much safer to leave the wound open for a possible recurrence. If one covers them immediately, one is going to get some that will recur underneath the flap, and when one finds a thickening of the flap, it is sometimes hard to tell whether it is a recurrence of the carcinoma or not. I see so many patients in whom radium has been used and the condition recurs that I feel the other methods are preferable in these cases.

CALCIFIED DEPOSITS IN SUBDELTOID BURSITIS *

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AND
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INDIANAPOLIS

A full discussion of the subject of subdeltoid bursitis is not possible here, and therefore only that phase in which the condition is associated with a deposit will be considered. A full study of both the acute and the chronic form may be obtained by reading the articles referred to in the footnotes.

In 1906, Codman [1] gave a most complete discussion of the anatomy of the bursae about the shoulder. From this study it was clearly shown that the subacromial and the subdeltoid bursae were identical and the names synonymous. The bursa is composed of thin walls and contains but little fluid. There is no communication with the shoulder joint. Lying directly beneath and intimately connected with the bursa is the tendon of the supraspinatus muscle. It is also in close proximity to the subscapular and the infraspinatus tendons, thus playing a rôle in rotation of the humerus. On account of the thinness of the walls and the attachment to the tuberosities of the humerus and the under surface of the clavicle, he considers an entire resection of the sac as impossible.

The clinical picture of subdeltoid bursitis is one largely of pain and loss of function. The pain may be a slight constant ache with sharp stabbing pains in certain limited motions, or it may be so severe as to cause a total impairment to the shoulder alone or to the body as a whole and require morphine for its control. A characteristic painful spot is over the lower fibers of the deltoid. The limitation of motion is quite characteristic in that abduction is possible to only about 45 degrees, rotation both internal and external is about 50 per cent of normal, while on the other hand forward and backward movement is painless and normal in range. Abduction may be painful through only a small arc, as when the bursa slides under the acromion, and this is noted when the arm is raised as well as when it is lowered. Atrophy is present in the chronic cases both in the deltoid and in the supraspinatus regions. Point tenderness is not constant in its location and may be absent. Swelling is rarely observed. Inflammatory reaction of the skin is not seen, and pus is not found by aspiration nor at time of operation. Muscle spasm may or may not be present. In the acute cases with deposits it may be marked, especially in the short rotators of the shoulder. Nerve symptoms are uncommon and appear late, if at all. A diagnosis of brachial neuritis is often made.

The etiology of subdeltoid bursitis is not clear either as to the primary causative factor in simple types or as to the subsequent changes which lead to the formation of calcareous deposits about the bursa. Trauma is, however, the element that is most universally accepted as the cause.[2] This trauma may be of a

* Read before the Section on Orthopedic Surgery at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 10, 1931.

1. Codman, E. A.: On Stiff and Painful Shoulders, Boston M. & S. J. **165**, 1906.

2. Codman (footnote 1). Carnett, J. B., and Case, E. A.: A Clinical and Pathological Discussion of So-Called Subacromial Bursitis, S. Clin. North America **9**: 1107 (Oct.) 1929. Resnik, Joseph: Physiotherapy in Subdeltoid Bursitis, Physical Therap. **47**: 322 (June) 1929. Titus, N. E.: Electrical Treatment of Subdeltoid Bursitis, Am. J. Surg. **6**: 318 (March) 1929.

slight but frequently repeated type or of a single severe injury. In some cases no history of injury can be obtained. Some investigators feel that the initial lesion is always in the supraspinatus tendon and that the bursa is involved secondarily, while others state that the trauma is to the bursa at the time of abduction movements, the bursa being injured as it glided beneath the acromion. Other investigators [3] consider infection as playing a major rôle in the bursal changes. It is essentially a condition of adult life, one seen equally in males and in females, in those of sedentary life and in those of athletic tendencies, and is often bilateral.

The factors leading to the formation of calcareous deposits in certain cases are not understood. If trauma to the bursa alone is the exciting cause there is no other analogous traumatic bursitis in the body for comparison. The only condition of which we have knowledge in which there is a calcareous deposit following trauma is perhaps that of myositis ossificans, and in the latter one also notes the spontaneous disappearance of the deposit, as has been noted in the deposit of subdeltoid bursitis. Those who consider the lesion to be one of the supraspinatus tendon feel that the tendon undergoes an ischemic necrosis in which necrotic tissue the lime salts are deposited. Their theory is further strengthened by their observation that the deposit is never found within the bursal sac but always in or on the tendon. Those who consider infection as the primary cause present no explanation for the formation of the deposit.

The length of time necessary for the formation of the deposit is perhaps over a considerable period, although this is difficult to prove as most of the cases in which the deposit is found are roentgenographed after the onset of the acute symptoms appear and one does not know how long the deposit has been present. Brickner alone reports one case in which the shoulder was roentgenographed after an accident and found to be negative for any shadow of deposit, but in roentgenograms taken of the shoulder forty-eight hours later the appearance of a "calcium" deposit was seen. The absence of the deposit in the first roentgenograms may have been due to an error in the technic of making the exposure to the effect that the shadow of the deposit did not show.

The relation of some metabolic predisposition to the formation of these calcium deposits has been suggested by Brickner,[4] and his reasons for this belief are that the deposits occur only in adults; that they are found occasionally in one shoulder and then in the other; that in some cases it persists and in others it becomes absorbed; that, although a common condition, it does not appear in some individuals who apparently use their arms in the same manner as those do in whom a deposit is found; that it occurs in the muscular and athletic type as well as in those of weak and sedentary habits, and that it occurs in both males and females.

The composition of the deposit has been found by most surgeons [5] to be some salt of calcium; others [6] found amorphous fats and calcium salts, while Stern [7] reported three cases in which amorphous fat alone was found in the laboratory examination, while all his chemical tests were negative for calcium.

Wrede, in 1912, reported that necrobiotic changes take place in the torn tendon of the supraspinatus muscles with the result that irregular bodies of lime are deposited along the tear. Moschcowitz,[8] in 1914, studied three cases and found tendon inflammation, necrosis and calcification as the principal changes. Case,[2] from a study of twenty-six cases in which Carnett operated, gives the following complete report of his observations: "The sequence of changes in the tendon seems to be a primary interference with the blood supply, which is never very abundant, followed by ischemia and necrosis. In the necrotic tissue are deposited lime salts. Some inflammatory reaction was observed. The deposits may be large or very small, in one case over 500 small deposits being found. The deposit is often cheesy, sometimes fluid or semifluid, or it may be firm and brittle. Culture shows it to be sterile. In the few cases examined chemically, fat was not found but the deposit consisted of some salt of calcium, the phosphate, oxalate or carbonate. In one case was found the development of bone and cartilage. Evidence of hemorrhage was observed only in two cases. The inflammatory reaction may lead to granulation tissue. The cellular reaction may closely resemble a giant cell tumor." To our knowledge there does not occur a similar reaction in injured tendons in any other part of the body and in those cases in which there has been an organization of blood sufficient to cast a shadow in the roentgenogram the change has been an osseous one, which is permanent, the only exception being that phenomenon classified as myositis ossificans. In none of our cases was the deposit removed and therefore no pathologic or chemical study can be reported.

The diagnosis of a deposit in subdeltoid bursitis is dependent on the roentgen observations, as these deposits cannot be palpated and the acute symptoms may occur without the presence of a deposit. In taking the roentgenogram several views of the shoulder are required, especially those with the arm in full internal and in full external rotation. A "soft" tube is of value in bringing out a faint shadow. Although the roentgenogram may show a considerable space between the humerus and the deposit, this does not indicate that the deposit lies within the bursal sac. It is interesting to note that neither the presence of the deposit nor its size or shape have any relation to the severity of the pain. In most cases the deposit is so large that it is inconceivable that it could have been formed in the time between the onset of the symptoms and the taking of the roentgenogram, often only a matter of a few hours. It also is a common observation to have the symptoms disappear long before the shadow of the deposit is lost in the roentgenogram.

W. B., a dentist, had a sudden jerk given to the elbow. Some pain followed immediately which in six hours became so severe as to cause complete disability of the arm. A roentgenogram (fig. 1) showed a large deposit. Pain was relieved in three days and the deposit disappeared almost entirely in eight days.

The exact relation of the deposit to the sudden onset of acute symptoms is not clear, but no doubt some particular motion in the shoulder or some unusual trauma may, through the deposit, cause a further trauma to the tendon with a resulting acute inflammatory reaction

3. Granger, F. B.: Calcified Subdeltoid Bursitis, Internat. Clin. **4**: 265 (Dec.) 1926. Fields, S. O.: Subacromial Bursitis, New York M. J. **101**, 1915.

4. Brickner, W. M.: Pain in the Arm: Subdeltoid (Subacromial) Bursitis, J. A. M. A. **69**: 1237 (Oct. 13) 1917.

5. Codman (footnote 1). Carnett and Case (footnote 1). Resnik (foonote 1). Brickner (footnote 5). Cooperman, M. B.: Subdeltoid Bursitis, New York State J. Med. **26**: 807 (Oct. 1) 1926.

6. Granger (footnote 3). Cooperman (footnote 5).

7. Stern, W. G.: Metamorphosed Fat Deposits in Subdeltoid Bursitis, Surg. Gynec. Obst. **40**: 92 (Jan.) 1925.

8. Moschcowitz: Am. J. M. Sc., 1915.

within or about the tendon. Carnett [2] presents the theory that through this inflammatory reaction the deposit may become absorbed. Granger [3] considers the production of an acid reaction as the result of a rapid migration of leukocytes following an acute condition.

The treatment of subdeltoid bursitis is either conservative (physical therapy) or radical (surgical). In the acute or subacute types without any deposit showing in the roentgenogram the usual plan of treatment is by heat, including diathermy, rest and manipulation of the shoulder under anesthesia. In this paper only the treatment of those cases showing a deposit will be considered.

Radical surgical treatment is advocated by several writers. Jones and Lovett state that "a definite indication for surgery lies in the presence of a definite lime deposit shadow in the roentgenogram existing in connection with marked symptoms. Albee is quoted as follows: "If in acute cases there are severe increasing pains and a loss of function and radiography demonstrates a deposit of lime, open operation gives the quickest relief and often aborts a prolonged disability." Carnett [2] and Codman [1] also believe that excision of the deposit is indicated in all cases, each being inclined to be more liberal in advising operation as the simplest, speediest, and surest method of effecting a cure. Carnett makes the interesting observation that he thinks that those cases which are relieved by diathermy would have had an absorption on account of the acute condition and that he has never seen any deposit without an acute condition that has been absorbed, meaning no doubt either spontaneously or by diathermy. Campbell states that "many surgeons advise the removal of the calcareous deposits before conservative measures are begun." His own personal view, however, is that "after conservative measures have been given a thorough trial without improvement, the removal of the foreign body by operation is indicated." Steindler [9] is also somewhat conservative in his views, believing

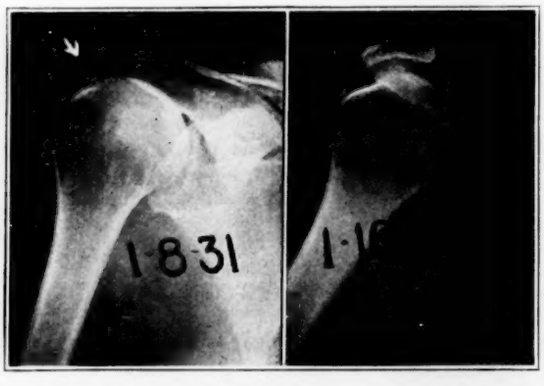

Fig. 1.—Relief from pain in three days. Treatment: diathermy.

that "the operative treatment should be reserved for cases of long standing or cases showing lime deposits and not yielding to conservative treatment."

Brickner [10] used conservative forms of treatment without success, stating that none of his cases with lime deposits had been relieved except those in which operation had been performed. In a later article he [5] reaches the following conclusions: "Operation is advised first in the chronic cases with exacerbations and second in all other types which do not respond to the simple method of automatic abduction described by me." Fields [3] advised the injection of the bursal sac with 5 per cent iodoform in glycerin, but apparently he is alone in this plan of treatment. Codman, in his monograph on shoulder conditions, which is to be published soon, says: "In a general way my attitude is 'If I had your trouble (calcareous deposit) I would

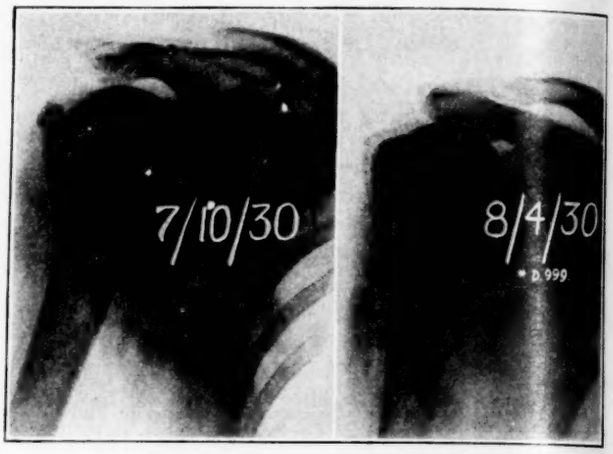

Fig. 2.—Calcified deposit disappeared in three weeks. Pain relieved in four days. Treatment: diathermy.

prefer operation as the best way to avoid pain and disability.'" He has little if any faith in diathermy and also condemns fixation by strapping or bandage.

The conservative treatment by means of diathermy has many advocates. Deering [11] asserts that he made in 1916 the first recorded attempt to treat subdeltoid bursitis "by means other than drugs, surgery or orthopedic measures" and states that there is rarely if ever a case in which deposits are present that cannot be made to recover by conservative measures in which diathermy plays a large part. Cooperman,[5] Harris,[12] Resnik,[2] reporting 50 cases, and Titus,[2] reporting 150 cases, believe that the deposit can be dissipated under the influence of diathermy. Titus reported one case that was apparently relieved by the mere taking of the roentgenogram.

We have had sixteen cases of subdeltoid bursitis, of which fourteen cases were associated with calcareous deposits as shown in the roentgenograms. All presented acute symptoms, but in six no history of trauma was given. All were unilateral and all in adults. Ten were in men and six in women. Five patients led a rather active athletic life, two being golfers. No constant etiologic factor was present. In one case pain was noted in other joints and a toxic condition was considered as a cause. This patient did not show a deposit. In four cases there was a history of a severe trauma followed within a few hours by acute pain in the shoulder with loss of function. All patients were treated with diathermy and a complete relief of symptoms and a complete restoration of function was obtained in all cases. In none has there been any recurrence of pain, although all resumed their former mode of life. Only one patient has been reroentgenographed after a period of five years, and it did not

9. Steindler: Reconstructive Surgery of the Upper Extremity.
10. Brickner, W. M.: Prevalent Fallacies Concerning Subacromial Bursitis, Am. J. M. Sc. **149**, 1915.
11. Deering, G. E.: Physical Treatment of Subacromial Bursitis, Physical Therap. **48**: 125 (March) 1930.
12. Harris, J. F.: Action of Diathermy in Calcified Subdeltoid Bursitis, J. A. M. A. **85**: 1134 (Oct. 10) 1925.

show a recurrence of the deposit although the patient resumed the same activities. In none of the patients with deposits was there any evidence of ankylosis (the cases of bursitis following trauma in which there was a definite clinical picture of tendon lesion without deposit but with ankylosis are not included in this study).

The following plan, devised by one of us (F. J. M.), was used in the application of the diathermy:

The patient was made as comfortable as possible in order to gain relaxation. If the patient was more comfortable in the reclining position the arm was supported by a pillow, and a pillow was placed under the knees. The diathermy with the patient in this position was given through and through the affected area with the electrodes placed anteroposteriorly. If the patient was more comfortable in the sitting position the arm was placed over a pillow, which rested on a table, and one electrode was placed over the deltoid and the other under the medial aspect of the arm near the axilla.

In all sixteen cases the electrodes were of block tin (gage 22), as they are pliable and can be made to conform to the contour of the part. The size of the electrode varied, an average of 7 by 3½ inches being used, the two electrodes being of equal size. In most cases a pad of spongiopilin was used under the tin electrode, this pad being saturated with a soda solution or a saturated salt solution. The pad, which was of slightly larger area than the tin electrode, was soaked in the solution and wrung out tightly to insure an even distribution of the solution. There seems to be a considerable difference of opinion as to the use of wet pads. We feel that they keep the skin moist and allow room for the tissues to dilate. The treatment

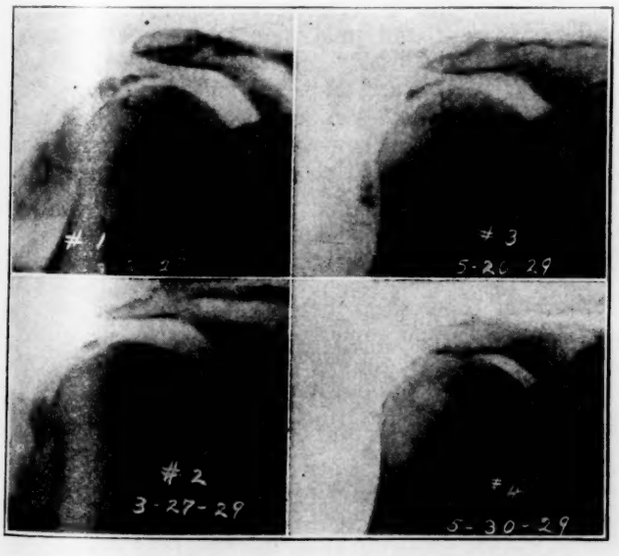

Fig. 3.—Calcified deposit; note fragmentation. Treatment: diathermy.

can also be given for a longer time without the danger of a concentration of heat to a small area, with the danger of a resulting burn. The electrodes were secured by semielastic bandages or by handbags, as the situation required. The part was then covered with several thicknesses of soft blanket and the patient warned not to move the part or disarrange the electrodes; the nurse, who is always in attendance should the electrodes become too hot, is also warned. After the electrodes were connected with the diathermy machine, the machine having first been checked to make sure that everything was in perfect working condition and that all switches were turned off, the current from the alternating current mains was allowed to come in. The spark gap was then opened a little at a time, from five to ten minutes being taken to work up to a comfortable tolerance by the patient. A treatment of from thirty to forty minutes was then given. After removal of the electrodes, the part was bathed with warm alcohol.

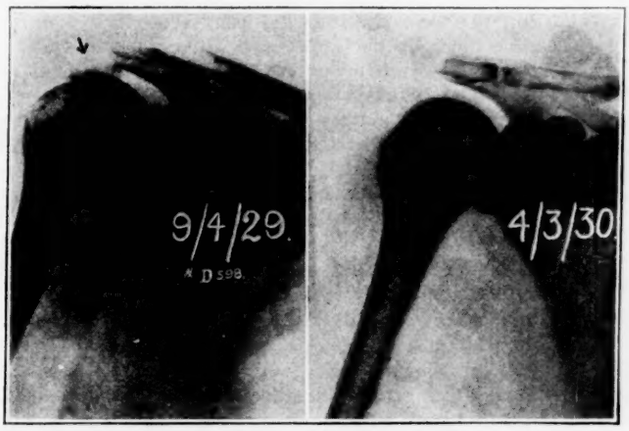

Fig. 4.—Calcified deposit well under acromion. Treatment: diathermy.

CONCLUSIONS

From the study of our cases the following conclusions have been reached:

1. The etiologic factor in subdeltoid bursitis with calcareous deposits is not definite. Repeated mild traumas with the arm in the abducted position may play an important part in the production of the lesion or it may be a single mild or severe single trauma leading to an injury to the tendons. Why a calcium salt is deposited in some cases and not in others is not clear. In none of the very severe "painful" shoulders in which there is a marked loss of function due to firm adhesions and in which there was no doubt a tearing of the supraspinatus tendon did a deposit occur.

2. The calcareous deposit has no relation to the pain other than that perhaps it may lead to further trauma and produce an acute attack. It has been found in shoulders free from pain and it will persist in the roentgenogram even after the acute symptoms have disappeared.

3. The deposit, if a calcium salt, reacts unlike any other calcium deposit or change in any other part of the body in that it may form without an apparent cause, it is often fragmented, and it will disappear spontaneously or under the influence of electrical heat in the form of diathermy. The only analogous condition is that sometimes seen in myositis ossificans in which there occurs a spontaneous absorption of the deposit.

4. Surgical intervention should never be advised until diathermy has been used. All our patients became well by this conservative form of treatment and in all cases with a deposit shadow the deposit either entirely disappeared or became much smaller and less dense in the roentgenogram. In none was surgery necessary. The average number of treatments was twenty-one, given daily for the first two weeks and then twice a week. Relief from pain was obtained in from three to ten days. The end-result was complete restoration

of function without pain. Ten cases have been checked at the end of one or more years, and no recurrence has been noted.

5. Diathermy should be given a trial before surgery is advised.

820 Chamber of Commerce Building.

ABSTRACT OF DISCUSSION

DR. JAMES A. DICKSON, Cleveland: In the last few years I have had the opportunity of observing many patients who were under Dr. Crile's care suffering from severe hyperthyroidism and who were at the same time suffering from various joint changes. It was striking that, with this severe upset in the metabolism, no matter how many other joints were involved there was a marked predilection for localization in the shoulders and many times these were the only joints involved. The patients give a typical clinical picture of a toxic periarthritis—with restriction of abduction and rotation. The roentgenograms in practically all cases were negative to a calcific deposit and in only one case of hyperthyroidism with a basal metabolic rate of +37 per cent was a deposit demonstrated. Many of the patients were treated with diathermy and the usual conservative principles before their thyroid operation. The results at this stage in spite of complete rest in bed and the various forms of physical therapy were extremely disappointing and the patients failed to manifest anything but a mild improvement. After thyroidectomy, on the other hand, there was almost invariably an extremely marked degree of improvement in from forty-eight to seventy-two hours. The intense joint pains rapidly subsided and then with further physical methods there was a complete return to normal functioning. Any one that has had the opportunity of following these cases cannot but be struck with the marked influence of faulty metabolism in them. I would emphasize the importance of considering these metabolic problems in the treatment of all persons with periarthritis of the shoulder. The story is not all told as yet as to the exact relationship of the general metabolism, and particularly calcium metabolism of the body, to the causation of subdeltoid bursitis. Many of these metabolic factors are not understood at the present time, but I feel that it is from the angle of general body metabolism and blood chemistry that the greatest advancements are going to be made in the furthering of the treatment of the cases under discussion. Mumford and Martin have not emphasized the removal of foci of infection, and I cannot help but feel that this is extremely important. Several of my cases cleared up rapidly after dental extractions or tonsillectomy. I am confident that there was a definite relationship between the two and I feel that it would be wrong not to deal with these cases from this angle as well and not depend on local measures only. These problems have to be approached with the broad outlook that is adopted at the present time in the treatment of cases of multiple arthritis.

DR. PHILIP LEWIN, Chicago: Under etiology one should consider injury, infection, metabolic disturbances, and exposure to variations in heat, cold and moisture. There are definite types such as the rheumatic, traumatic and postural, and various combinations. There is a type which is an index of arthritis either present or impending. Posture of the head and shoulders should not be overlooked. The questions of fibrosis and calcification are poorly understood from the physicochemical point of view. The diagnosis may be difficult. The roentgenograms are not always helpful or conclusive. One should insist on two projections of each shoulder; viz., one with the arm at the side, the other with the arm abducted and externally rotated if the patient can tolerate it. Stereoscopic films are often helpful. In all cases, roentgenograms of the cervical spine should be made in two projections. Two changes worthy of mention are, first, the dense white shadow just mediad to the greater tuberosity; second, a decalcified area in the lateral portion of the head of the humerus. As to treatment, a doctor friend of mine consulted Brickner, who advised wearing long-sleeved heavy underwear. This afforded complete relief from pain. Brickner advises a certain bed position in order to obtain abduction and external rotation, to be followed by indian club exercises. Codman inclines to operation. Physical therapy measures include rest, heat, gentle massage and diathermy, whose virtues were so well emphasized by the authors. Titus recommends the method in which one finger is employed as the concentrating pole in order to localize the action. Exercises are indicated later. While the patient is being given local palliative treatment, metabolic and chemical studies should be made. One should treat the patient as well as the shoulder. In the differential diagnosis one must determine first whether the lesion is inside or outside the shoulder and, secondly, whether or not it is a roentgenographically demonstrable lesion.

UTERINE HEMORRHAGE IN PELVIC INFLAMMATORY DISEASE*

C. F. FLUHMANN, M.D.
SAN FRANCISCO

In a recent statistical study of a large series of patients with abnormal uterine hemorrhage,[1] it was observed that a pelvic inflammatory disease accounted for the disorder in 16 per cent of the patients who had not passed the menopause. This large number and the fact that the hemorrhage manifested itself clinically in a variety of ways, suggested pelvic inflammatory disease as an important field for investigation of the factors concerned in uterine bleeding. The present study is an analysis of the clinical manifestation and pathologic observations in a series of fifty-two patients with pelvic inflammatory disease of gonorrheal origin, and associated with menorrhagia, polymenorrhea, or some form of metrorrhagia.

INCIDENCE

Although there are comparatively few figures in the literature giving the incidence of menstrual disturbances and uterine bleeding associated with acute or chronic salpingitis, it is generally recognized that these conditions are found in a high percentage of cases. Goth[2] obtained a history of irregular uterine bleeding in 219 out of 700 cases of pelvic inflammatory disease. Nebesby,[3] in an analysis of 120 cases, found that profuse menses were present in 71, or 59 per cent of the cases, and irregular bleeding in 41, or 35 per cent. Vogel[4] stated that profuse menses occurred in 34.2 per cent of complicated and in 26.9 per cent of uncomplicated cases of salpingitis. Hartmann[5] analyzed a series of patients with acute and chronic conditions. In 112 chronic cases he found 45 with profuse menses and 40 with a shortening of the cycle, while of 175 acute cases only 94 showed no change in the character of the first menses following infection. In a study of menstrual irregularities, Heyn[6] found that pelvic inflammatory disease was the factor responsible for menorrhagia in 62 (36.3 per cent) out of 171 cases, and for too frequent and too profuse menses in 54 (47.4 per cent) out of 114 cases.

The figures available from the Stanford gynecologic service also point to a high incidence of abnormal uterine

* From the Department of Obstetrics and Gynecology, Stanford University School of Medicine.

*Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 10, 1931.

1. Fluhmann, C. F., and Morse, D. L.: Studies on Uterine Hemorrhage, Am. J. Obst. & Gynec. **21**: 455 (April) 1931.

2. Goth, L.: Klinische Studie ueber 700 Fälle von entzündlichen Adnextumoren, Arch. f. Gynäk. **92**: 300, 1910.

3. Nebesby, quoted by Goth (footnote 2).

4. Vogel, W.: Ueber den Einfluss von Lageveränderungen des Uterus und von entzündlichen Adnexerkrankungen auf die Menstruation, Arch. f. Gynäk. **123**: 168, 1924.

5. Hartmann, Heinz: Der Einfluss entzündlicher Adnexerkrankungen auf den Ablauf des mensuellen Zyklus, Monatschr. f. Geburtsch. u. Gynäk. **76**: 419 (July) 1927.

6. Heyn, A.: Ueber die Ursachen der zu starken und zu häufigen Regelblutungen, Arch. f. Gynäk. **127**: 496, 1925.

bleeding in patients with pelvic inflammatory disease. In an analysis of 114 cases of all types of salpingitis, Gafford [7] found that 47, or 41.2 per cent, of the patients complained of uterine hemorrhage. Of these, 18 had profuse menses, 17 polymenorrhea, and 12 irregular hemorrhage. In the last 100 patients operated on for salpingitis, abnormal bleeding was cited as one of the complaints in 36 instances. And, finally, a recent statistical study of uterine bleeding [1] showed that of 417 patients before the age of the menopause 67, or 16 per cent, had a pelvic inflammatory disease. Of these, 21 complained of menorrhagia, 14 of polymenorrhea, 18 of continuous bleeding following a previously normal cycle, 13 of atypical irregular hemorrhages, and 1 of slight bleeding in the middle of the cycle.

CLINICAL CHARACTERISTICS OF BLEEDING

In their extensive work on the endometrial changes accompanying pelvic inflammatory disease, Schroeder and his pupils [8] analyzed their observations according to the predominant pathologic process in the pelvis. However, in keeping with a number of previous papers [9] dealing with various aspects of uterine hemorrhage, the present study has been based on a series of patients classified according to the clinical manifestation of the abnormal bleeding.

Fifty-two cases were available for detailed study, and it was found that these fell into two large groups: first, patients with disturbances of menstruation (thirty cases), and, second, patients with irregular hemorrhage (twenty-two cases). These again could be subdivided into smaller categories:

1. Profuse or prolonged menstrual periods; twenty-eight-day cycle (menorrhagia), fifteen cases.
2. Too frequent menses (polymenorrhea), fifteen cases.
3. Atypical, irregular bleeding (metrorrhagia), twelve cases.
4. Continuous bleeding, the onset coinciding with a menstrual period, two cases.
5. A period of bleeding, the onset occurring between the eighth and eighteenth days of the cycle, eight cases.

PATHOLOGY

Since every patient of this series was treated by some operative procedure, a specimen of at least the endometrium was available for examination in each case, and in eighteen instances all the pelvic organs had been removed. This series, although small, may be considered as fairly representative of the various clinical types of gonorrheal salpingitis, except for the fact that only a few specimens were obtained during the febrile stage in acute cases. This deficiency, however, is partly compensated for by the fact that a considerable number of patients were operated on shortly after the subsidence of the fever.

1. *Menorrhagia* (fifteen cases).—The fallopian tubes were available for examination in thirteen instances, and an old chronic "healed" condition was found in ten cases, while in three there was a pyosalpinx. Sections of one or of both ovaries were examined in thirteen of the fifteen cases, and a mild inflammatory infiltration of the ovarian stroma could be demonstrated only twice. Ovarian hematomas were found in three cases, a corpus luteum cyst in one, and a normal ovary seven times. A normal endometrium corresponding to the correct phase of the cycle was noted in eight cases. In six instances there was a type of chronic endometritis characterized by a diffuse infiltration of the stroma with plasma cells, lymphocytes and polymorphonuclear leukocytes. This infiltration involved the basal layers of the endometrium as well as the functionalis and superficialis, but there was essentially no interference with the normal cyclical development of the mucosa. In one isolated instance there was an extensive purulent infiltration, especially marked near the surface.

2. *Polymenorrhea* (fifteen cases).—The pathologic observations in this group were similar to those in the first. The tubes in eleven out of fourteen specimens showed old-standing healed lesions, and a purulent exudate was found only three times. Thirteen specimens of ovaries were available and in only one was any round-cell infiltration noted. A normal condition was present eight times, ovarian hematomas in two cases, and corpus luteum cysts in two cases. The endometrium was normal in appearance in twelve specimens, and in three there was a diffuse mild endometritis as described in the first group.

3. *Atypical Irregular Bleeding* (twelve cases).—In the group of patients with metrorrhagia, a specimen of the tubes was available in only seven cases, four of which showed old healed lesions, while in three there was a pyosalpinx. One or both ovaries were available for examination in nine cases, but only in one instance was any inflammatory change demonstrable in the stroma. In five cases the ovaries were perfectly normal, in two there were hematomas, and in one a corpus luteum cyst was present. The conditions found in the endometrium, however, were very characteristic, since in ten out of the twelve cases there was an extensive endometritis. In these cases the endometrium showed a tremendous infiltration with lymphocytes, polymorphonuclear leukocytes and at times also with plasma cells, which was especially marked near the surface. In most cases there was an interference with the normal cyclic development of the mucosa, a very marked hyperemia of the surface layers, necrosis of the tissues, the presence of small abscesses beneath the epithelium, and even definite ulceration. In the other two specimens of endometrium, one showed a type of chronic endometritis as described for the first group, while in one instance no abnormality could be demonstrated.

4. *Continuous Bleeding, Onset with a Menstrual Period* (two cases).—Only two specimens representing this type of bleeding were available for study. In each case, pus tubes and an intense endometritis were present. The ovaries were normal in one instance, while in the second there was a slight diffuse infiltration with round cells.

5. *Period of Bleeding, Onset between the Eighth and Eighteenth Days of the Cycle* (eight cases).—The tubes were available for examination in five cases, and in four of these there was a pyosalpinx. The endometrium was normal in one case, showed a mild chronic endometritis in two, while in five the intense inflammatory reaction described in group 3 could be demonstrated. Six specimens with one or both ovaries were obtained, and of these only two had a normal appearance. In one there was a slight infiltration with leukocytes and lymphocytes, while in three at least one ovary showed the presence of one or more abscesses (pyo-ovarium).

It is thus seen that certain pathologic characteristics may be assigned to each of the clinical groups. The examination of the fallopian tubes in the patients with

7. Gafford, J. A.: Stanford University School of Medicine, student's thesis, 1930 (not published).
8. Schroeder, R,. and Neuendorff-Viek, F.: Der mensuelle Zyklus bei akut- und chronisch-entzündlicher Adnexerkrankung, Arch. f. Gynäk. **115**: 15 (Oct.) 1921. Hartmann (footnote 5).
9. Fluhmann, C. F.: Uterine Bleeding in the Absence of Gross Pelvic Pathology, Calif. & West. Med. **30**: 153 (March) 1929; The Endometrium in So-called Idiopathic Uterine Hemorrhage, J. A. M. A. **93**: 1136 (Oct. 12) 1929. Fluhmann and Morse (footnote 1).

menstrual disturbances presents mainly old-standing lesions, whereas in the three groups with irregular bleeding is found a higher percentage of more acute processes, as shown by the presence of pus tubes. Ovarian abscesses were noted only in the patients with abnormal bleeding which sets in in the intermenstruum. In the patients with menorrhagia or polymenorrhea, the endometrium either is normal or shows a type of chronic basal endometritis. And, finally, the majority of the patients with irregular or continuous hemorrhage have an intense, acute or subacute, inflammatory lesion of the endometrium, especially marked near the surface, and associated with vascular changes, necrosis and ulcer formation.

MECHANISM OF BLEEDING

The factors concerned with uterine bleeding in patients with a pelvic inflammatory disease offer an extensive scope for study, owing to the variety of ways in which the hemorrhage manifests itself and to the number of lesions which occur in the different organs. The subject is further complicated in that several of these factors may be involved in the production of the bleeding in the same patient and, although the pathologic conditions that are found offer considerable assistance, they do not present a complete solution to the problem. It may be said, however, that there are three main conditions concerned with the production of the various types of uterine hemorrhage associated with pelvic inflammatory disease; namely, (1) interference with normal uterine contractions and the presence of a pelvic hyperemia; (2) inflammatory lesions of the endometrium, and (3) disturbances of ovarian function.

1. The factors considered under this group are of importance in that they are concerned not with the direct causation of hemorrhage from the uterus but with the control of the amount of the blood loss. This aspect of the problem is thus associated not only with the production of menorrhagia (too profuse menstrual periods) but also with all other types of bleeding from the body of the uterus.

In a previous analysis [1] of ninety-nine cases of menorrhagia, it was suggested that the two main factors responsible for profuse menstrual periods are conditions which either interfere with the normal contractions of the uterus or result in an increase of blood flow to the pelvis. Both these conditions are fulfilled in the patients with pelvic inflammatory disease. The resultant malposition and the formation of adhesions interfere with uterine contractions which normally serve to control the amount of blood loss from the endometrium, while a hyperemia of the pelvic organs occurs as an active process accompanying the inflammation.

2. A consideration of the second factor concerned with bleeding in patients with pelvic inflammatory disease, namely, endometritis, is approached with a good deal of hesitancy, as it represents one of the most abused and controversial subjects of modern gynecology. It is indeed to be regretted that this term is applied to endometrial lesions which have nothing whatever to do with inflammation and is still glibly used as a clinical diagnosis where it certainly does not exist. The studies of Hitschmann and Adler, Schroeder and his pupils, Curtis, and others, have not only established the identity of conditions such as normal premenstrual endometrium and glandular hyperplasia endometrii from septic inflammatory changes of the uterine mucosa, but they have described the criteria which must be depended on for the pathologic diagnosis of endometritis.

Although an endometritis is frequently found associated with acute or chronic salpingitis (Kronke [10] gives as high a figure as 81 per cent of the cases), the exact rôle of this lesion in producing abnormal uterine hemorrhage is difficult to determine. It is certain, however, that at least in some instances an endometritis may produce bleeding. This is shown by the hemorrhages found accompanying postabortal infections, and in a small number of patients with an endometritis in whom there is no accompanying pathologic change in the pelvis. For instance, in a previous analysis [11] of ninety cases with "so-called idiopathic uterine hemorrhage," seven patients were found in whom an endometritis was the sole lesion that could be demonstrated. On the other hand, it would seem difficult to reconcile the fact that many patients who present a histologic picture of endometritis give no history of abnormal bleeding. The answer, however, probably lies in the recognition that there are various degrees and types of inflammatory lesions of the endometrium, and that hemorrhage is found chiefly in those severe conditions which lead to necrosis and ulceration.

Of the fifty-two cases of this series, an endometritis could be demonstrated in thirty-five instances. It is important, however, to note that two definite types are described in this study, each of which has distinct histologic characteristics, although an absolute differentiation may be difficult in some instances. It may be said that one represents an acute exacerbation of the disease, and the other a chronic, quiescent or "healed" condition.

The most important type, which may be considered as an acute or subacute endometritis, is responsible for atypical irregular hemorrhage or continuous bleeding which sets in following a previously normal menstrual cycle. In these cases, no doubt can be entertained that bleeding is a fairly constant accompaniment of the pathologic process and is directly due to the local tissue destruction which accompanies the inflammatory reaction. In one instance a definite small, shallow, round ulcer could be seen grossly in the endometrium.

In the other type of endometritis there is a comparatively mild lesion, with but little influence on the cyclic endometrial growth, and it is difficult to state with certainty whether this condition has any appreciable effect on the course of the menstrual cycle. It is the lesion most commonly found in patients with no abnormal bleeding, and of twelve cases found in this series nine were in patients complaining either of menorrhagia or of polymenorrhea. It is possible that in these cases the lesion has nothing to do with abnormal bleeding, as suggested by Schroeder [12] and Hartmann,[13] but the problem must remain *sub judice* for the present. It is noted, for instance, that, of the six patients with menorrhagia in whom the endometrium shows this picture of chronic endometritis, four gave a history of markedly prolonged menstrual periods in addition to a profuse flow. It is thus conceivable that the local lesion may be a factor in this type of bleeding, in that it may interfere with healing and the proliferation of the mucosa following the desquamation of menstruation.

3. Although pathologic inflammatory changes within the ovaries themselves are found only in a comparatively small number of cases, the occurrence of numerous

10. Kronke, U., quoted by Schroeder (footnote 12).
11. Fluhmann (footnote 9, second reference).
12. Schroeder, R.: Der mensuelle Genitalzyklus des Weibes und seine Störungen, in Veit-Stoeckel: Handbuch der Gynaekologie, Munich, J. F. Bergmann **1**, part 2, 1928.
13. Hartmann, Heinz: Zur Anatomie und Klinik der "echten" Endometritis, Arch. f. Gynäk. **131**: 405, 1927.

atretic follicles, corpus luteum cysts and corpus luteum hematomas is ample evidence that ovarian function is considerably affected by the surrounding inflammation. This feature is of especial importance in considering the mechanism by which a shortening of the menstrual cycle with resultant "too frequent menses" is brought about.

The occurrence of cyclic bleeding at shorter intervals than the usual twenty-eight days can be produced only in one of three ways. In the first place, the patient may have a glandular hyperplasia endometrii, a condition that has been eliminated in the patients of this series by the histologic examination of the endometrium. Second, the ovarian and endometrial cycles may be normal but "speeded up," so that all the events occur more rapidly than usual. This condition is generally due to a hormonal disturbance which probably originates in the anterior hypophysis.[14] The third explanation is not only amply supported by the histologic evidence advanced by Schroeder and his school but must be accepted as the most logical for the patients under consideration. In these cases there is no overstimulation of the ovary but, rather, a deficiency, so that there is a premature degeneration of the corpus luteum with a resultant early appearance of menstruation and hence a shortening of the intermenstrual interval. It would seem that this ovarian dysfunction is a result of a chronic perioophoritis and also possibly of the hyperemic changes that are set up in the ovaries.

In addition to the foregoing interference with ovarian function in chronic infections, the ovaries may be affected in another manner. In the course of an acute or subacute salpingitis it is possible for an infection of a corpus luteum with resultant abscess formation to take place. The rupture of a graafian follicle at the time of ovulation may furnish a portal of entry to the bacteria, although they may also find their way in by the lymphatic route (Schroeder). The excision, or destruction with a cautery, of an early corpus luteum, as has been known since the work of Fraenkel, Pychlau, Whitehouse and others, is followed in about thirty-six hours by a period of uterine bleeding, and a similar effect may be produced by a corpus luteum abscess in patients with a pelvic inflammatory disease. This conception may thus form the basis for the abnormal bleeding in the patients of group 5 in this study, and it is of interest that this is the only category in which ovarian abscesses were noted. It must not be deduced, however, that this type of bleeding always accompanies the formation of a pyo-ovarium, for most of the patients with ovarian abscesses, as a matter of fact, do not show any abnormal bleeding (Schroeder). And, conversely, an important factor in the production of hemorrhage in patients belonging to group 5 has been shown to be an acute endometritis. It has also been possible to observe a coexistence of ovarian abscesses and endometritis in the same patient, suggesting that the breaking down of the endometrium, due to the ovarian lesion, may pave the way to endometrial infection in the same manner as the desquamation of a normal menstrual period.

CLINICAL ASPECTS

From a clinical standpoint, it is of considerable interest to draw attention to the large percentage of patients with pelvic inflammatory disease who have abnormal uterine bleeding. In such cases it is of vital importance to recognize that the hemorrhage does not necessarily call for specific treatment. It is a complication of the main lesion in the adnexa, and therapy must be directed to this condition. The recent report of Priestly and Payne [15] shows the beneficient effects on profuse and irregular menstruation of modern conservative treatment of pelvic inflammatory disease. And, finally, the incidence of so many cases of endometritis points to the dangers attendant on the injudicious employment of the curet in such patients.

The clinical characteristics of the bleeding described under group 5 may at times prove of diagnostic value. Although a woman with an acute salpingitis which is treated by conservative measures usually has a subsidence of fever and general improvement in from ten days to three weeks, a patient is occasionally encountered in whom the fever may continue for many weeks. One of the chief factors responsible for this complication is the presence of ovarian abscess formation, and in such cases it is unwise to delay operation unduly, in spite of the febrile condition of the patient. The finding of uterine bleeding setting in about one week after a normal menstrual period may thus be considered as a valuable sign suggesting an ovarian infection and may assist in determining the correct therapeutic procedure.

SUMMARY

1. Abnormal uterine bleeding is found in from 35 to 50 per cent of all patients with acute or chronic salpingitis.

2. This bleeding may manifest itself clinically in five ways: (*a*) profuse periods, twenty-eight day cycle; (*b*) too frequent menses; (*c*) atypical irregular bleeding; (*d*) continuous bleeding, the onset coinciding with a normal menstrual period, and (*e*) a period of bleeding, the onset occurring between the eighth and eighteenth days of the cycle.

3. The most important factors concerned in the production of the bleeding are (*a*) interference with uterine contractions from adhesions and malpositions; (*b*) pelvic hyperemia; (*c*) endometritis; (*d*) ovarian deficiency induced by chronic perioophoritis and hyperemia, and (*e*) corpus luteum abscess formation.

Lane and Stanford University Hospitals.

ABSTRACT OF DISCUSSION

DR. P. BROOKE BLAND, Philadelphia: I think that one should look on abnormal bleeding not as a subjective phenomenon but as a sign, and this carries the implication that it is not an expression of disturbed function but of altered structure. This conception of genital hemorrhage is clearly supported by the investigation conducted by Dr. Fluhmann. I have always looked on bleeding of an abnormal type as a rather frequent accompaniment of pelvic inflammatory disease. In fact, I regard it as almost a constant sign, and I was rather surprised to learn that it was present in only from 30 to 50 per cent of the patients studied by the speaker. With the pelvic organs more or less intensely engorged in the various forms of genital infection, one would naturally expect bleeding to arise in the form of either menorrhagia or metrorrhagia in a large percentage of the cases. From the scientific observations made by Dr. Fluhmann, one will now not only be able to state that bleeding occurs in a definite percentage of cases but, still more important, one will be able to state its exact source. This is a feature of the investigation that is especially impressive to me. With regard to the term endometritis, I fear that for some years many of us have been figuratively weaned away from that rather descriptive phrase, so much so that we were partially led to believe that as a pathologic entity it did not exist. There seems to be a widespread conviction that endometrial changes are seldom of a morbid nature but simply represent a reactionary process

14. Fluhmann, C. F.: Anterior Pituitary Hormone in the Blood of Women: 4. A Preliminary Clinical Classification of Results in Nonpregnant Individuals, Endocrinology **15**: 177 (May-June) 1931.

15. Priestley, J. T., and Payne, F. L.: The Treatment of Pelvic Inflammatory Disease, Am. J. Obst. & Gynec. **19**: 87 (Jan.) 1930.

intimately related to physiology or to the cycle of menstruation. Dr. Fluhmann from his studies quite conclusively demonstrated that the endometrium does undergo pathologic alteration. He found definite gross architectural as well as histologic changes of a type that could leave no room for doubt as to the inflammatory nature of the lesions. There is no reason why an inflammatory process could not arise in the mucous membrane of the uterus just as readily as it does elsewhere. Not only has Dr. Fluhmann shown that the condition exists as an entity, but he has also definitely demonstrated that it is the chief source of the bleeding associated with infectious conditions of the pelvic organs. Of the fifty-two cases studied, inflammatory changes in the endometrium were present in twenty-eight, or nearly 60 per cent.

DR. W. T. CARLISLE, Chicago: I have recently studied the records of 602 patients with pelvic inflammatory disease at St. Luke's Hospital. Most of these patients had been followed for more than two years. None of them were intentionally operated on during the acute or subacute stages of the disease. In this group, 254, or 40 per cent, had abnormal uterine bleeding at some time. Of these 254 patients, 174 bled during the acute stage; 49 of these 174, however, returned to normal menstrual cycles at the end of their acute stage. The remaining 125 continued to bleed persistently, some being followed for six or eight years. Eight of the 602 patients developed periods of amenorrhea following the acute stage of the disease. In this group of bleeders, the most constant physical signs were displaced uteri and tubo-ovarian inflammatory masses. I am in accord with Dr. Fluhmann in believing that the determination of the mechanism of bleeding would be a step forward in the prognosis and treatment of pelvic inflammatory disease. It is probable, however, that this determination is predicated on determining the mechanism of normal menstrual bleeding, and the determination of the mechanism of normal menstrual bleeding is based on precepts that are not well understood. In enumerating the factors concerned in the production of bleeding in pelvic inflammatory disease, Dr. Fluhmann places, first, interference with uterine contraction from adhesions and from malpositions. There is scant evidence that oxytocic drugs, ergot, pituitary extract, and so forth, have anything to do with the amount or the course of bleeding in pelvic inflammatory disease. That would lead one to believe that uterine contractions are not of primary importance. Dr. Fluhmann places pelvic hyperemia second and endometritis third; yet both of these processes are characteristic of the acute stage and aid but little in explaining the bleeding of the chronic stage in which it is shown bleeding is not an unusual phenomenon. Under the fourth heading Dr. Fluhmann places perioophoritis. I think this is the most important of all. I would emphasize the difficulty of forming opinions and conclusions without serial sections of the ovaries and uteri.

DR. JACOB HOFFMAN, Philadelphia: Endometritis, per se, is a rare condition. The reasons for the immunity of the endometrium are to be found in its anatomy and physiology. The hyperemia during the proliferating phase, the ability of the straight tubular glands to empty themselves readily, and the cyclic desquamations are some of the factors involved in the protective mechanism. Now and then I encounter a tuberculous process or an inflammation produced by trauma, but for the most part the cases I have seen were the result of an abortion. The reasons for this may be found in the ability of the anchoring villi to penetrate the basal layer as well as the myometrium. The cyclic desquamations here fail to rid the membrane of this foreign substance. Histologic examinations of curettings may reveal a hyperemia, leukocytic and plasma cell infiltration as well as other signs of inflammation. The only clue to a previous abortion may be found in the thickened, hyalinized blood vessels; not always does one find remnants of chorionic villi. The history in many cases in which such a picture was found revealed a former abortion which had taken place several months before. Thus, these cases of apparent endometritis were in reality cases of residual infection post abortum. Local hyperplasia, not infrequently, is a cause of uterine hemorrhage. This condition is often missed because the curettings represent only a small fraction of the endometrial surface. They may appear normal, and yet examination of the extirpated uterus may reveal a localized area of hyperplasia, which has escaped the curet. A thickened tunica albuginea surrounded by adhesions, the result of pelvic infection, whether gonorrheal, puerperal or postabortal, often leads to a mechanical ovarian hypofunctioning. The thickened tunica albuginea often impedes maturation and rupture of graafian follicles with consequent absence of corpus luteum formation. It is known that, in the absence of the inhibiting control of the corpus luteum, an excess number of follicles ripen; but, failing to rupture, they become the seat of cystic degeneration. There is, in these cases, invariably an associated endometrial hyperplasia which often gives rise to prolonged uterine hemorrhage when menstruation does ensue.

DR. S. C. RED, Houston, Texas: Dr. Carlisle stated that about 25 per cent of these patients decide not to be operated on. What can be done for them? According to my experience and that of my associates, they also may get satisfactory results. And it is possible that others likewise may get similar results. If these nonoperative cases are treated with mixed gonorrheal vaccines in from 1 to 2 cc. doses, hypodermically, they usually show improvement. In order to have any effect one must give a dose large enough so that there will be a reaction and the patient will have chills, fever and sweating. After one gives five doses, in a period of three weeks, that is, every four days, one will find that the patient is satisfied as well as the doctor.

A MICROSCOPIC METHOD OF TYPING PNEUMOCOCCI BY THE USE OF STAINED ORGANISMS *

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DURHAM, N. C.

As the success of serum treatment in lobar pneumonia depends largely on its administration early in the course of the disease, the importance of speed in typing the offending organism becomes apparent immediately, and any method designed to hasten the process of typing merits publication.

The method here presented, which makes use of hanging drop preparations of stained organisms, has been applied to thirty-eight different strains obtained

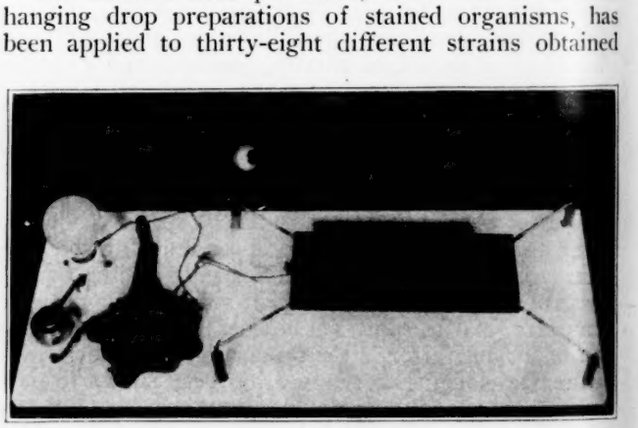

Fig. 1.—Shaking machine.

from the following sources: two cases of pneumococcus meningitis; two cases of pneumococcus empyema; twenty-six cases of lobar pneumonia and eight laboratory stock strains. The distribution of the various types was as follows: type I, ten cases; type II, eight cases; type III, six cases; type IV, one case; type V, two cases; type VI, one case; type VII, two cases; type VIII, two cases; and group IV, sub-type undetermined, six cases. In every instance, organisms obtained both from Avery's medium (dextrose-blood-broth, p_H 7.8) and from mouse inoculation were

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employed, and the results were checked with the usual macroscopic method.

The folowing materials were used:

1. Capillary tubes drawn out to a bore of about 1 mm.
2. Saturated solution of gentian violet in 100 per cent alcohol.
3. Hollow-ground slides containing two concavities ringed with petrolatum.

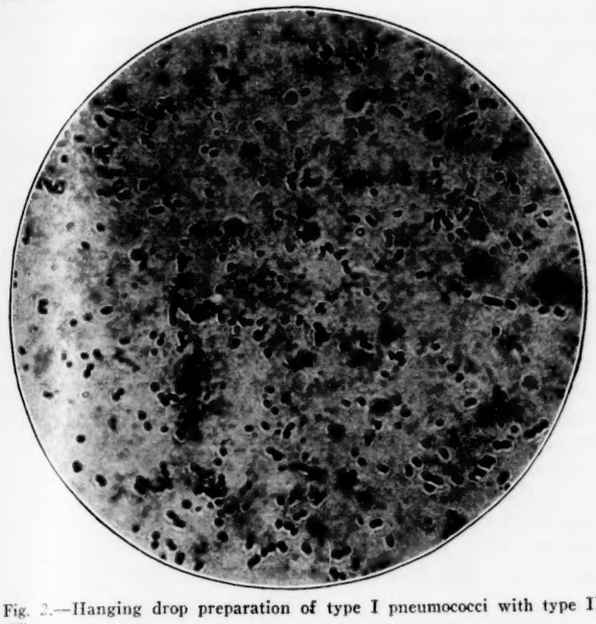

Fig. 2.—Hanging drop preparation of type I pneumococci with type II serum.

4. Shaking machine: This machine is commonly employed for quick blood grouping;[1] it consists of a platform, suspended by coiled springs from four posts, on which the slides are carried in oblong niches, and which is set in vibration by the clapper of an electric bell (fig. 1).

5. Typing serums, properly diluted to prevent group agglutinations. With the particular serums now being used in this laboratory, 1:10 dilutions of types I and II serums and 1:5 dilution of type III serum have been satisfactory. The diluted serums may be conveniently kept in small test tubes embedded in plasticine and covered by inverted test tubes of larger size. Thus protected from contamination and evaporation the diluted serums may be kept in the icebox for several weeks.

METHOD

The organisms are prepared in suspension as for an ordinary macroscopic typing, and a drop is taken up by a capillary pipet and transferred to each of the four cover slips. Another capillary pipet is held for a moment in a bunsen flame to seal its end and bend it into the form of a small hook. This hook is dipped into the gentian violet solution, and the adhering dye is allowed to dry completely. The stain is worked into the drop of bacterial suspension on the cover slips and, as the film of dye on the hook is very thin, the amount mixed with the drop of suspension can be controlled accurately. The amount of dye to be worked into the drop to secure the best staining can be gaged easily after a little experience. If the dye as it comes off the hook spreads unevenly through the drop, a second capillary hook, without stain, can be used to secure an even mixture. The organisms take up the dye selectively and appear as deeply stained bacteria in an unstained or faintly bluish medium.

1. The apparatus was designed by Dr. Arthur Black and made by Mr. Warren Tauber. A modification of this machine is soon to be placed on the market by Lederle Laboratories, New York.

After the drop has been stained, equal volumes of the diluted serums are added by capillary tube and thoroughly mixed with the suspension by means of capillary hooks, care being taken, of course, to use separate stirring rods for each of the various preparations so as not to mix the serums (figs. 2 and 3). In the ordinary typing, four hanging drop preparations are set up, one for each of the three fixed types and one without serum for control. The cover slips are inverted over hollow-ground slides, sealed and placed in the shaking machine, where five minutes of shaking usually brings about sufficient agglutination to be read with the 4 mm. objective.

COMMENT

Microscopic agglutination has been known since the time of Gruber and Widal. In 1902, Neufeld, making use of the observation that the pneumococcus capsule swells in the presence of its specific serum,[2] attempted to type pneumococci microscopically[3] but concluded that the procedure was not sufficiently accurate for clinical use. Recently Sabin[4] described a "stained slide" method of typing the pneumococcus, mixing serum and bacterial suspension on an ordinary slide, drying, and staining.

The method here described, however, employs two novel features, the staining of organisms in hanging drop and the use of the shaking machine to secure rapid agglutination. It presents the advantages of speed and accuracy, for not only are the preparations set up more quickly than by the usual macroscopic method but, in contrast to the half hour or longer that the latter must remain in the water bath before they can be read, the hanging drop preparations usually show definite agglutination after shaking for five minutes, often in even less time. Moreover, since the organisms are stained, details of the agglutinating process are subject to examination, and even an inexperienced worker has no difficulty in deciding whether

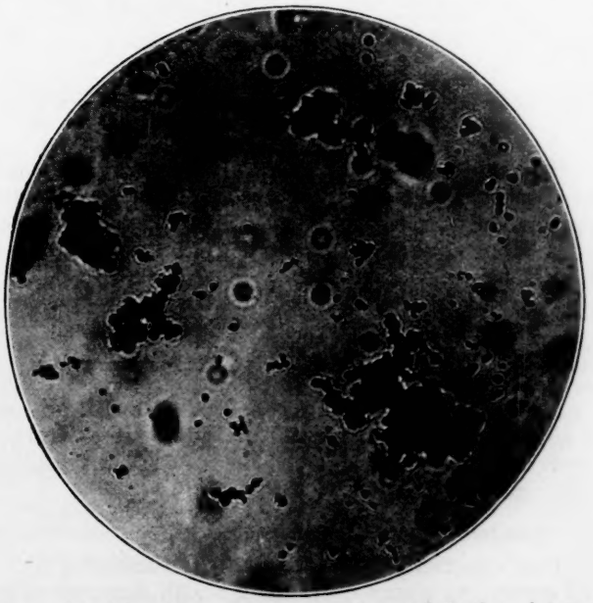

Fig. 3.—Hanging drop preparation showing agglutination of type I pneumococci by type I serum.

2. Neufeld: Ztschr. f. Hyg. u. Infektionskrankh. **40**: 54, 1902.
3. Neufeld, in Kolle and Wassermann: Handbuch der pathogenen Mikroorganismen, ed. 3, Jena, G. Fisher **4**: 969.
4. Sabin, A. B.: Proc. Soc. Exper. Biol. & Med. **26**: 492, 1929; J. Infect. Dis. **46**: 469 (June) 1930.

or not a given mass really represents agglutinated organisms. The method should be particularly useful in those laboratories that are now subdividing the organisms of group IV into the various types, since the quantities of organisms and serums required are much smaller than for the macroscopic method.

In practically all the preparations the organisms at the periphery tend to be crowded more closely together than in the remainder of the drop, and the inexperienced eye is inclined at first to mistake such groupings for true agglutination. One should take care, therefore, to examine the whole drop before reaching any conclusion as to whether or not agglutination has taken place.

One other precaution that should be mentioned is that the type III organisms very often agglutinate in only one or two large clumps, which fall to the bottom of the drop and which, in this situation, may be overlooked. If one is not careful, one is likely to focus the attention on the few organisms remaining free in the upper part of the fluid and fail entirely to observe the big clumps at the bottom.

Although this method has been applied extensively only to the pneumococcus, it should be found equally useful in other agglutination reactions. The streptococci, for example, are stained well by this method, and even gram-negative bacteria take the stain, though with less intensity than do the gram-positive organisms.

In three cases, two of which were of group IV and one of type III, it has been possible to obtain directly from the sputum sufficient organisms for typing by this method, without having to wait for culture or mouse inoculation. Establishment of the value of the latter procedure must necessarily await a larger series of cases.

SUCCESS IN PUBLIC HEALTH RESEARCH *

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Public health research, as a function of the public health organization, has a special field, the practical application of existing knowledge to health problems. It is "applied science" rather than "pure science." Its logical scope includes the medical sciences; epidemiology; dental hygiene, control of milk, water and foods; sanitation; vital statistics, and public health education. The most pressing demands on the public health laboratory for research work come, not from the medical branches which are already served by many well equipped agencies of investigation, but rather from the newer and rapidly developing fields which at present are not well provided for.

ORGANIZATION

Past experience indicates that the successful method of creating a research unit in a health department is to build it in the laboratory and extend it to other branches from the laboratory as a nucleus. Unfortunately, most health departments are inadequately equipped for research. Under these conditions, the most difficult problem of the developing research laboratory is to conserve its resources for really productive use. Obviously, research facilities of limited scope, if they are to yield successful results, must be most carefully protected against wasteful loss of effort, and used in such a way as to afford the greatest possible returns in finished output.

How easy it is to dissipate research effort in futile, unpromising and ill advised problems! Too many problems, a too rapid succession of demands, or undue administrative pressure for quick results tend to dissipate energy uselessly. The avoidance of such pitfalls is the special province of the technical laboratory director, and the key to success lies in his unhampered authority to choose finally, from the problems presented, those which give the most promise and which lie within the facilities available.

In the ideal form of organization the technical director of the research laboratory derives his authority from the chief of the department, directly without intermediate steps. This system not only facilitates the laboratory work but also favors the development of cooperative research between the laboratory and other branches of the department. It is the highly successful plan of the New York City department of health. When such direct authority is lacking in support of the technical director, research development will usually, often of necessity, be limited to the laboratory, where the needed authority exists and the essential requirements for successful work can be met.

In Chicago the research program of the laboratory has been carried out under a "salvage plan" of organization; that is, lacking definite budget provision, the research work has been built out of the facilities provided for the routine. Problem work has been fitted in by utilizing the interpeak periods and selecting lines of investigation readily adaptable to the routine. Under this plan the research output of the bureau in the last five years has amounted to thirty-one completed and published studies and forty-six minor unpublished problems. The large amount of research completed in this time was done without any increase in staff over that provided for routine work. At the same time, about 10 per cent more routine work was turned out during part of the period. The research work accomplished, therefore, represents clear gain from "salvage" without loss or curtailment of the regular routine output amounting to approximately 335,000 specimens annually.

How, then, may the ordinary routine public health laboratory successfully enter the field of research under the too common handicap of inadequate facilities, pressure of routine work and, perhaps, lack of official administrative foresight and sympathetic support? The essentials to success in this venture that should be given emphasis are:

1. Cultivation of the research point of view.
2. Treatment of the staff.
3. Treatment of the problems.
4. Provision of scientific contacts.
5. Methods of securing publication.

THE RESEARCH POINT OF VIEW

The research spirit is spontaneous. It cannot be driven or created by an order. It is predicated on the personal interest of the worker himself in the problem for its own sake—interest arising from an inner impulse to seek the truth. Research disregards working hours; it forgets fatigue; it remains constantly in the subconscious thought. It subordinates personal affairs. Successful research is the product of patient, unstinting effort, the best that the worker has to give. It is

* Read before the Chicago Society of Internal Medicine, May 26, 1931.
* Because of lack of space, a table and bibliography of these studies is omitted from THE JOURNAL, but will appear in the reprints, which the author will be glad to send on request.

a personal creation. Its function is to lead ideas into new channels rather than to bear out preconceived ideas. In its published form, truthful as to authorship as well as to data, it becomes a monument to the creative effort of the author and a contribution to the sum of knowledge. This point of view on the part of the staff and management brings success and assures a high quality of output.

TREATMENT OF THE STAFF

As a fundamental principle, research workers must be selected for their aptitude to research work, rather than because of rank, title or other consideration. In a group of routine laboratory workers, some may possess the potential qualities of the successful investigator—conscientiousness, powers of observation, good judgment, accuracy in work and thought. Under suitable stimulation these qualities can be developed, interest in problem work cultivated and technic perfected on trial problems. It is usually wise to encourage workers to specialize and for this purpose to assign successive problems on the same or related subjects to a worker showing aptitude in a special field. Less experienced workers are trained by being paired with more experienced associates.

Rewards of merit should be offered to encourage interest in problem work. Credit for authorship must be regularly given to those contributing an essential part of the work and limited strictly to those actually participating. Trips to scientific conventions should be provided for. Research workers should be given freedom to make contacts with other scientific workers, to engage in library reference work, and to serve on scientific committees. Reprints of published work should be provided for interchange with other workers. Assignment to preferred lines of work and relief from the more burdensome routine are sources of encouragement. One by one, staff members having an inclination toward research are tried out on minor problems. If successful, they are encouraged to continue. If not, if their interest is not sustained, or if they are not willing to contribute their best, they are returned to the routine.

The selection of the personnel must be carefully safeguarded at the time of initial employment. All technical positions must be filled strictly on the basis of competence, whether by direct appointment or by civil service examination. The occasional misfits who creep into every group of workers must be eliminated firmly, impersonally, but without compromise, for the good of the organization and to safeguard the work.

Well trained men should be sought continually and encouraged to accept appointments and take the examinations. To this end, the salaries should be made attractive to the best type of worker and there should be a promotional system based strictly on merit and administered with absolute impartiality.

The position of the practical laboratory with respect to the salary of the trained technician is of necessity different from that of the academic laboratory, in which apprenticeship in a profession and credit toward a degree are attractive inducements. In seeking a personnel of the better type, the practical laboratory naturally meets those who have already served their apprenticeship and who therefore properly expect a fair return for trained service. Obviously, these careful, conscientious, well trained university graduates are entitled to a wage consistent with the standards of employment about them, sufficient to enable them to meet their family responsibilities and to live in a manner comparable to other groups of the same grade of intelligence and efficiency.[1]

Cooperation with the civil service commission to set high standards in the examinations is essential. Examining boards for the technical positions should be of the highest type. A board of three, of whom two are from neighboring scientific institutions and one from the laboratory staff, has been found most serviceable. Examinations should be graded and posted without delay, preferably by the board that selects the questions. An oral feature also is highly desirable.

Gradually, by these methods, a trained staff of investigators can be accumulated, and progress in research work may be assured.

TREATMENT OF THE PROBLEMS

The problems must be carefully chosen and the finished work strictly censored. A program should be laid out according to a logical and consistent plan and, once adopted, the plan should be rigidly adhered to unless an emergency intervenes. This is necessary to conserve the resources and assure productivity of effort.

The technical director, as the one best fitted to judge the laboratory's capacity, should make the final decision as to the subjects, scope, technical methods and priority of the problems to be undertaken, according to the facilities available and the qualifications of the staff. This does not mean, of course, that suggestions should not be taken for problems of immediate interest to the control bureaus and the department generally but is simply a recognition of the fact that, in the last analysis, the facilities and capacity will inevitably limit the work that can be successfully accomplished. Officials should be encouraged to bring their problems to the laboratory and participate in investigations, but to attempt problems that are beyond the capacity is sheer folly and almost always leads to wasted effort and disappointment.

The problems undertaken should be carefully studied in advance and should not be attempted unless they give reasonable promise of useful results. Subjects of fundamental importance to health protection should, of course, be given preference over minor problems so far as the facilities permit.

As a rule it is not practicable to carry on more than one problem at a time in a given line and hence a problem, once started, should be finished, if at all possible, before new demands are entertained. Such demands should go on a waiting list to be considered later unless an actual emergency exists.

The study of a subject in a series of phases is desirable and economical. As the needed special equipment is acquired and the workers become more experienced, the work proceeds more and more rapidly and economically and the output becomes progressively of better quality.

PROVIDING SCIENTIFIC CONTACTS

It is most important to promote friendly relations between the staff and various institutions of learning near at hand. This is a source of stimulation and encouragement, particularly to those engaged in research. The director and the staff members should have permanent connections, if possible, with universities, technical schools and scientific institutions, and an interchange of workers on various problems should

1. Tonney, F. O.: Salaries of Technicians, Proc. Ann. Cong. M. Educ. A. M. A., February, 1929, p. 74.

be encouraged. This policy will be found mutually profitable both to the worker and to the organizations concerned.

An advisory board of scientific men specializing in research will be found extremely helpful in planning constructive work, in providing needed stimulus to the staff, and in censoring completed reports prior to publication. Meetings of such a staff, held from time to time for the discussion of current problems, are most interesting and valuable and lead to desirable contacts for the staff members.

Encouragement should be given to the laboratory personnel to attend open lectures, to visit universities and to consult freely with others interested in the same lines of investigation.

METHODS OF SECURING PUBLICATION

The first consideration to assure publication of articles in the better periodicals lies in a high quality of the output itself. To this end, all problems that are under way should be followed personally by the director and all material proposed for publication should be carefully studied by him and by such advisers as he may consult. Articles or papers of indifferent value should not be given the approval of the research organization.

It is also essential that the director and the more experienced members of the staff be active in various scientific societies, representing as wide a variety of specialties as possible. The cost of such memberships distributed among the staff can be borne with profit by the organization. Regular attendance at scientific conventions for the reading of papers should be an established policy, and attendance at local scientific meetings by the staff should be systematically arranged.

RESULTS

By the methods discussed, which have been gradually evolved in our experience of the past twenty years, the laboratory of the Chicago Department of Health has investigated and published completed studies in a wide range of subjects. All these studies proved to be of practical value, and some have played an essential part in opening up new health problems of vital importance. The latest of these concerns the loss of ultraviolet radiation in the sunshine of cities; its fundamental health significance, previously not fully realized; its interrelation with atmospheric pollution, and the practical possibilities of its early solution.[2]

Other basic studies have given a definite turn to administrative methods for health protection in Chicago. The demonstration[3] of living bovine tubercle bacilli in the raw milk supply, in 1910, gave immediate impetus to the pasteurization movement of 1911. A similar study[4] in 1924-1925 was the basis of a campaign by the health department for eradication of bovine tuberculosis in the dairy district, which has at last definitely disposed of the health hazard from this source in the Chicago area.

Demonstration of the survival of typhoid bacilli for sixty days in oysters during storage[5] (a problem undertaken in connection with the oyster-borne epidemic of 1924) served to confirm the epidemiologic evidence incriminating shellfish and brought into prominence a hitherto unacknowledged avenue of infection. This work, together with that of contemporary investigators, helped to bring about the revision of sanitary methods for the control of shellfish that followed, and as a result, new and essential health safeguards have now been generally adopted.

Studies of water bacteriology and improved methods of water analysis[6] are also of basic importance to the protection of health. The results are already reflected in more effective control of the local supply of water and in less frequent occurrence of objectionable tastes from the chlorinating process.

Recent studies of the lethal effects of methyl chloride, a gas which has lately come into use in domestic mechanical refrigerators,[7] have shown that much smaller concentrations of this gas in air than had hitherto been considered dangerous are able to produce poisoning and death if the exposure is sufficiently prolonged.

FUTURE DEVELOPMENT

For every problem successfully completed in this period, there have been as many or more problems that could not receive adeqaute attention, or perhaps any attention at all, for lack of the needed facilities and staff. To have given them such attention would have been to sacrifice work of equal or greater importance and dissipate the effort expended, without arriving at a completed stage of the several investigations in hand.

The growing health needs of a great community give rise to many demands for practical research in problems concerning public health and in Chicago only a few such demands can be met with the facilities now provided by the municipality. Yet enough has been accomplished to show by specific example the urgent need and ultimate economy of adequate or even liberal provision for research in public health by the community itself. Surely the time is ripe for the establishment of a public health research laboratory commensurate with the needs of the metropolitan area; a complete and fully equipped modern laboratory, housed in a specially designed building of ample capacity, situated in a central location, equally accessible to all sections of the city, to the business district, and to the administrative offices; a laboratory planned not only for immediate needs but for the emergencies of the future, and manned with an adequate staff of trained investigators working consistently for better health conditions.

2. Tonney, F. O.: Hoeft, G. L., and Somers, P. P.: Loss of Actinic Intensity in Urban Sunshine Due to Air Pollution, J. Prev. Med. **4**: 139-148 (March) 1930. Tonney, F. O., and De Young, C. R.: Smoke Eradication to Save the Health Value of Urban Sunshine, Am. J. Pub. Health **21**: 344-354 (April) 1931.

3. Tonney, F. O.: Tubercle Bacilli in Market Milk in Chicago, J. A. M. A. **55**: 1252-1254 (Oct. 8) 1910.

4. Tonney, F. O.; White, J. L., and Danforth, T. F.: Tubercle Bacilli in the Raw Milk of the Chicago Dairy District, Am. J. Pub. Health **17**: 491-493 (May) 1927.

5. Tonney, F. O., and White, J. L.: Viability of Bacillus Typhosus in Oysters During Storage, J. A. M. A. **84**: 1403-1406 (May 9) 1925.

6. Greer, F. E.; Noble, R. E.; Tonney, F. O.; Nyhan, F. V., and O'Neil, A. E.: The Sanitary Significance of Lactose-Fermenting Bacteria not Belonging to the B. Coli Group, J. Infect. Dis. **42**: 501-574 (May and June) 1928. Tonney, F. O.; Greer, F. E., and Danforth, T. F.: The Minimal "Chlorine Death Points" of Bacteria. I. Vegetative Forms, Am. J. Pub. Health **18**: 1259-1263 (Oct.) 1928. Tonney, F. O.; Greer, F. E., and Liebig, G. F., Jr.: The Minimal "Clorine Death Points" of Bacteria: II. Vegetative Forms. III. Spore Bearing Organisms, ibid. **20**: 503-508 (May) 1930. Noble, R. E.: A Cyanide Citrate Pour Plate Method for Direct Determination of Colon-Aerogenes Content of Water and Sewage, J. Am. Water Works A. **19**: 182-192 (Feb.) 1928. Noble, R. E.: Comparative Colon-Aerogenes Indices of Water and Sewage, ibid. **19**: 733-746 (June) 1928. Tonney, F. O., and Noble, R. E.: The Relation of Direct Bact. Coli and Bact. Aerogenes Counts to Sources of Pollution, ibid. **22**: 488-501 (April) 1930; The Direct Count of Colon-Aerogenes Organisms, Its Possibilities and Promise, J. Infect. Dis. **48**: 413-417 (April) 1931; An Improved and Simplified Cyanide Citrate Agar for Direct Enumeration of Colon-Aerogenes Organisms, presented at the Fiftieth Annual Meeting of the American Water Works Association, St. Louis, June, 1930. Greer, F. E., and Kells, L.: Lactose-Fermenting Bacteria Growing on Leather Washers, Canad. Engineer (June) 1929. Marti, W. C., and Silver, F. V.: The Determination of Small Amounts of Phenols in Water Supplies, Unpublished studies, 1930.

7. White, J. L., and Somers, P. P.: The Toxicity of Methyl Chloride for Laboratory Animals, read at the Fifty-Ninth Annual Meeting, American Public Health Association, in October, 1930.

Clinical Notes, Suggestions and New Instruments

ANOTHER CASE OF THALLIUM POISONING FOLLOWING USE OF KOREMLU CREAM

THOMAS P. WARING, M.D., SAVANNAH, GA.

Miss D. L., aged 28, gave a history of an attack of "nerves" four years previously, with a prior history of goiter. She took iodine for some time, with improvement. Physical examination at that time showed fusiform enlargement of the thyroid without damage to the heart. The tonsils were hypertrophied. The patient was not sick again until now.

In the latter part of February, 1931, the patient began to have pains in the arms and legs and the lower part of the abdomen, with strangury and headache; she did not have rise of temperature. The symptoms were thought to be due to influenza. The pains not yielding to medicine, the patient was admitted to the Telfair Hospital for examination and diagnosis. All serologic tests were negative. Examination of the blood revealed: white blood cells, 9,000; red blood cells, 4,500,000; hemoglobin, 75 per cent; clumping time, eight and one-half minutes, Wassermann reaction, negative. A trace of albumin was found, but urinalysis gave otherwise negative results. The tonsils were enlarged and apparently diseased. The patient left the hospital after a week. Feeling no better, she returned, April 1, for tonsillectomy. It was noted just before she entered the hospital the second time that the hair was falling out. After the tonsillectomy, she was much better for one month and had scarcely any pain at all. The hair continuing to fall, she went to the beauty parlor for treatment, and all the hair came out in the shampoo. May 1 there was a return of the pain in the legs and especially in the soles of the feet. The feet became so tender that the bedclothes could not touch them.

Examination, May 16, revealed a fairly well nourished young woman with a thick crop of short hair on the head; she was somewhat anemic. Her chief complaint was pain in the sole of the foot. The only comfort she could get was by wrapping her foot in oil and keeping it warm. Nothing could touch this foot and, in walking, she gave the appearance of walking on tacks. Physical examination was negative, except for sluggish reflexes in the legs and knees; the soles were hypersensitive. The kidneys were normal. The Wassermann reaction was negative. The patient had no fever. There were slight pains in the abdomen, the back and the head, and some pain in the bladder; urination was difficult. The blood pressure was 110 systolic and 70 diastolic. The hemoglobin content was 75 per cent. Urinalysis gave negative results.

It was recognized that the patient had been poisoned by some metallic poison, as the symptoms were those of arsenic, lead or mercury, without the special characteristics of each, but there was no history of infection by any one of these. The cosmetics used were those ordinarily used by women. It was not, therefore, until my attention was called to an article in THE JOURNAL, May 30, on thallium poisoning, that I realized what this girl had. In this issue were described several cases of poisoning by thallium, which gave the identical symptoms related by this patient. She had used several jars of Koremlu Cream, principally on the arms.

The case is interesting, because the diagnosis was so puzzling, and yet so simple when the true cause was found. A warning should be broadcast in regard to the dangers of the use of depilatories containing thallium.

De Renne Apartments.

A NEW SKIN ERUPTION PRODUCED BY PHENOBARBITAL *

M. G. PETERMAN, M.D., MILWAUKEE

This case is reported to present a new skin eruption, apparently caused by the ingestion of phenobarbital. The toxic reactions to this drug were described in 1927 by Jackson,[1] who reviewed the literature and presented six cases of his own. The characteristic reaction is an erythematous rash, which may involve the entire body. Fever, gastro-intestinal symptoms and cerebral symptoms may develop. An enanthem and conjunctivitis have been observed. Jackson mentions a case that had been mistaken for measles. I have seen a similar measles-like toxic reaction in a 6 year old child who presented the entire clinical picture of rubeola except for Koplik spots.

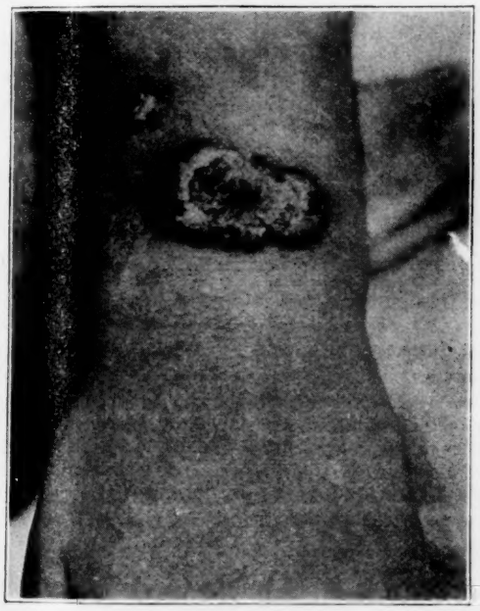


Fig. 1.—Typical bromodermia above left wrist.

Fig. 2.—Typical granulomatous lesion on right leg.

Fig. 3. — Extensive "anthracoid" lesion on left leg.

In the case here reported a typical granulomatous bromodermia had developed while the patient was continuing the use of bromides away from medical supervision. The lesions were as severe as any that I have ever seen (figs. 1, 2 and 3). In addition to the scattered papular lesions on the face there were large lesions on each leg (lower lateral third) and on each forearm (above the wrist), surrounded by smaller lesions. These eruptions consisted of multiple round, reddish, firm, "anthracoid" elevations with "rolled" edges; the lesions were papillomatous and crustaceous, with pus oozing from numerous

* From the Department of Pediatrics, Marquette University, and the Milwaukee Children's Hospital.

1. Jackson, A. S.: Toxic Reaction from Phenobarbital (Luminal), J. A. M. A. **88:** 642 (Feb. 26) 1927.

points. The bromides were discontinued, phenobarbital was substituted, and the sodium chloride in the food was increased. The lesions gradually cleared up, and in six months only the scars remained. At this time the dose of phenobarbital was doubled. Within one week, small vesiculopapular lesions appeared on both legs and forearms at the sites of the healing bromodermia granulomas (figs. 4 and 5). The lesions increased in size and exactly resembled the original bromide granulomas. Sodium amytal was substituted for phenobarbital and the new lesions disappeared in one month.

REPORT OF CASE

P. S., a boy, aged 6 years, had been under treatment three years for convulsions considered due to a cerebral birth palsy. In April, 1929, the family took the child to another city for treatment. The patient was placed in a hospital for twelve months and then dismissed; a prescription (potassium bromide, 10 grains [0.65 Gm.], twice a day) was given. He received this dosage of the drug regularly for three and one-half months until Sept. 3, 1930, when he was brought back to my office.

The patient was referred to Dr. H. R. Foerster for treatment. Three-fourths grain (0.5 mg.) of phenobarbital every morning was substituted for the bromides. Sodium chloride was added to the diet for seasoning. The lesions healed very slowly, as may be seen from the scars left seven months later (figs. 4 and 5). March 30, 1931, the condition required more sedative and the dosage of phenobarbital was doubled, three-fourths grain being given twice a day. April 8, 1931, the patient was brought to my office with the new lesions noted as *A* in figures 4 and 5. The mother stated that these lesions began exactly as the previous eruption had with small vesicular papules, which became pustular and then granulomatous as

Fig. 4.—New granulomatous lesions, *A*, developing on site of old bromodermia.

previously described. These lesions developed at the sites of the bromodermia granulomas, one on each forearm, two on the right leg and one on the left. The phenobarbital was discontinued and sodium amytal was given. The lesions immediately began to regress and disappeared in one month. The sodium chloride used throughout this period was "iodized," but the amount had remained the same; namely, just enough to season the cooked foods and butter.

SUMMARY

In a new type of skin reaction to phenobarbital, the eruption exactly simulated bromodermia and followed a bromodermia at the same sites. The eruption developed when a dosage of three-fourths grain of phenobarbital was given twice a day.

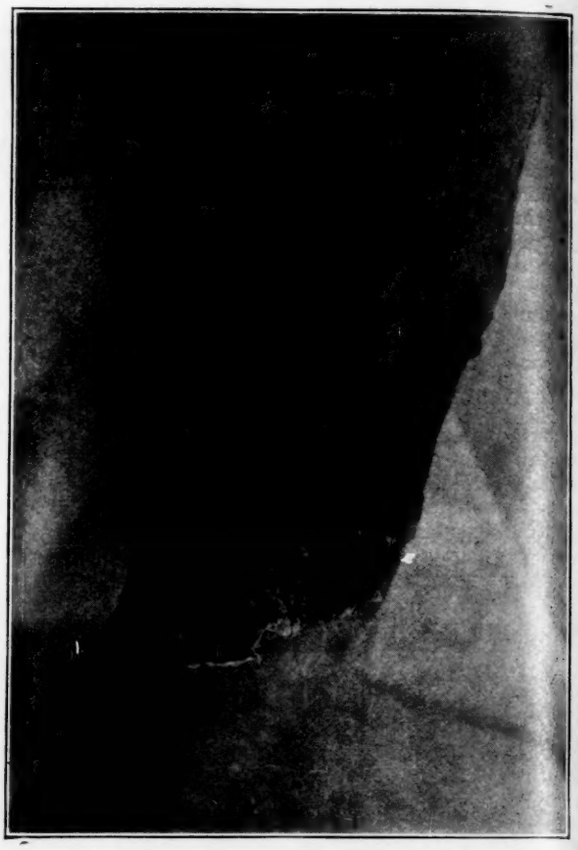


Fig. 5.—New lesion, *A*, just above healing bromide granuloma.

Previous to this increase the patient had been getting three-fourths grain of phenobarbital for six months. "Iodized" salt was used in the preparation of the food throughout the period and may have been a factor in the slow healing.

A CASE OF MENINGITIS DUE TO BACTERIUM TULARENSE *

J. O. HAIZLIP, M.D., AND ALFRED E. O'NEIL, M.S. CINCINNATI

The story of tularemia in all its phases has been told by Francis [1] and recently by Simpson.[2] Attention was first drawn to the human aspect of the disease in the work of Wherry and Lamb [3] wherein these workers were able to show bacteriologically the involvement of the etiologic factor in the lesions found in man. So far as we know, aside from mention by Francis [4] of five fatal cases terminating in severe meningeal symptoms, no case of meningitis has been shown to be the result of invasion of the spinal canal by *Bacterium tularense.*

REPORT OF CASE

T. M. P., aged 45, a night watchman, seen, December 19, complained of headache, severe head cold, a sore left thumb, and pain in the left axilla. Examination revealed a painful and swollen lesion of the palmar surface of the left thumb; tender axillary glands; chest, nose and throat essentially normal, and a temperature of 101.6 F.

* From the Department of Bacteriology and Hygiene, University of Cincinnati College of Medicine, and the Bethesda Hospital.

1. Francis: Johns Hopkins Univ. School Hyg., De Lamar Lect. 1926-1927, pp. 94-115.
2. Simpson: Tularemia: History, Pathology, Diagnosis and Treatment, New York, Paul B. Hoeber, Inc., 1929.
3. Wherry and Lamb: J. Infect. Dis. **15**: 331, 1914.
4. Francis, in Cecil: Textbook of Medicine, Philadelphia, W. B. Saunders Company, 1930.

No appreciable change was noticed in the patient's condition, except the development of some stiffness of the neck, until the night of December 23, when the temperature rose to 104.4 F. and marked rigidity of the neck appeared. The steady and alarming onset of meningeal symptoms prompted removal to the hospital on the afternoon of December 25.

The patient on December 10 had cleaned some rabbits and a squirrel. Symptoms of headache, some stiffness of the neck, nausea and vertigo, a lesion on the thumb, axillary lymph gland involvement and fever, suggested tularemia.

On admission to the hospital the patient was prostrated. The temperature was 103 F., pulse rate 96 and respiration 24. The blood pressure was 152 systolic and 50 diastolic. The neck was stiff and partially retracted; moving the head caused great pain; the soft palate was partly paralyzed and speech was incoherent. A few râles were heard over the chest. The heart was rapid with an occasional extrasystole; there were no murmurs. Examination of the abdomen revealed nothing abnormal. Urination was involuntary. The patient was extremely sensitive to pressure applied anywhere on the body. The Babinski, Oppenheim and Chaddock signs were positive on the left side. There was a puncture wound on the left thumb. The left axillary glands were swollen and tender; there was no epitrochlear involvement.

The blood count revealed: erythrocytes, 4,480,000; leukocytes, 3,300; polymorphonuclears, 60 per cent; lymphocytes, 36 per cent, and transitionals, 2 per cent.

The spinal fluid was cloudy and gave a white cell count of 2,100. Smears of centrifugated fluid showed the leukocytes to be polymorphonuclears and endothelials roughly in the ratio of about 10 to 3. Careful search of Gram stained preparations of sediment of the spinal fluid revealed no micro-organisms. Cultures by aerobic, anaerobic and partial tension methods on blood and dextrose ascites agar failed. The blood serum agglutinated a *B. tularense* antigen in a dilution of 1:40. A blood culture was negative.

Therapeutic measures consisted of physiologic solution of sodium chloride, hexylresorcinol by rectum, acriflavine hydrochloride by mouth, quinine and urea, and magnesium sulphate intramuscularly. No response to any of these measures was obtained. Three spinal punctures were made with some relief, which was only temporary.

Death occurred, December 28, the fourth day in the hospital and the eighteenth day after exposure. Permission for complete examination of the body could not be obtained. The gross pathologic picture was not typical tularemia. Significant observations, however, were multiple pulmonary infarctions, congestion and edema; toxic changes in the viscera, especially in the myocardium and spleen; local areas of necrosis in the spleen; early hepatic cirrhosis, and fibrous changes in the pancreas.

Search was made for the infecting agent, as follows:

A small amount of exudate was taken from the thumb lesion with a sterile swab, suspended in about 2 cc. of salt solution and injected into a guinea-pig. The same procedure was followed with another animal but, in this case, some sediment from a centrifugated specimen of spinal fluid was injected. Both pigs were placed in 5 gallon crocks and observed daily but were not handled until autopsies were performed five days later.

December 26, at 1 p. m., pig 1 was injected with exudate from the lesion on the thumb; pig 2 was injected with spinal fluid sediment.

December 30, pig 1 was found dead at 7 a. m.; pig 2 was very sick and was chloroformed.

At autopsy, both animals showed multiple minute areas of focal necrosis in the liver and spleen, the typical gross pathologic picture of tularemia.

Smears were made of the spleen of the pig injected with spinal fluid and were stained by the method of Dr. Lee Foshay.[5] Numerous typical *B. tularense* organisms were seen. Cultures of the splenic tissue were made on egg yolk medium. Growth appeared only in the condensation water after three days' incubation. A guinea-pig was inoculated cutaneously with the growth from the egg yolk slant. This animal died in five days, and autopsy showed the lesions typical of the disease.

We were unable to infect a guinea-pig with a piece of human spleen taken at autopsy. Most careful and painstaking search failed to reveal the presence of *B. tularense* in the human spleen and spinal fluid when direct methods were used. Animal passage was the only way in which we were able to demonstrate the etiologic factor concerned in this comparatively rare condition.

5. Method to be published.

COMMENT

It would appear that, in the vicinity of Cincinnati, tularemia may assume proportions not far from being alarming. To our knowledge there have been two deaths in fourteen cases which have been hospitalized. Many practitioners, especially those engaged in rural and suburban practice, report cases of this disease in its various clinical forms. Since the sportsman insists on protecting the rabbit, this strange disease will continue to tax every resource that the profession can bring to combat it. In the early stages of the disease in the rabbit the gross pathologic changes are not apparent to the untrained eye. The "spots" on the liver may be no larger than a pin point. The spleen will probably never be noticed. We believe a good policy to be that of letting the animals alone and permitting the disease to take its normal toll; or destroying the rabbit, the natural reservoir for the infection, by the open hunting season, even at the expense of a few human cases.

To the well recognized and clearly described types of tularemia, namely, glandular, ulceroglandular, oculoglandular and typhoid, we believe that a meningeal variety can be added. So serious a complication as involvement of the brain and cord is surely ample reason for recognition of the only available means for control, that of prevention, since all therapeutic measures have failed.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, Secretary.

PENTOBARBITAL-SODIUM.—Sodium ethyl (1-methylbutyl) barbiturate.—Sodium ethyl (methylpropyl carbinyl) barbiturate.—$NaC_2H_5[CH_3CH_2CH_2(CH_3)CH]\,C\,CONHCO:NCO$.

The monosodium salt of ethyl-(1-methylbutyl) barbituric acid. Pentobarbital-sodium differs from soluble barbital, U. S. P. (sodium diethylbarbiturate), in that one of the ethyl groups of the latter is replaced in the former by a 1-methylbutyl group.

Actions and Uses.—The actions and uses of pentobarbital-sodium are essentially similar to those of barbital, but it is effective in smaller doses. The action is of relatively brief duration, which may constitute an advantage, especially when relatively large doses are administered. It is used as a sedative, particularly prior to local, general or spinal anesthesia. It can be used safely for such purposes only by those who have had adequate experience and who are familiar with the literature concerning such use. It may be administered by mouth or by rectum; intravenous injection is considered unsafe.

Dosage.—Orally, as hypnotic, 0.1 Gm. (1½ grains); as preanesthetic sedative, 0.2 Gm. (3 grains). Rectally, for analgesia: for infants up to 1 year, 0.03 Gm. (½ grain), up to 3 years, 0.06 Gm. (1 grain); for adults, 0.32 to 0.38 Gm. (5 to 6 grains) dissolved in a few cubic centimeters of water.

Caution: Aqueous solutions of pentobarbital-sodium are not stable but decompose on standing; on boiling, a precipitation occurs with evolution of ammonia.

Pentobarbital-sodium occurs as a white, crystalline, odorless powder, with a slightly bitter taste; very soluble in water; freely soluble in alcohol; practically insoluble in ether. An aqueous solution of pentobarbital-sodium is alkaline to litmus.

Dissolve about 0.5 Gm. of pentobarbital-sodium in 100 cc. of water, add an excess of diluted hydrochloric acid, collect the resultant ethyl (1-methylbutyl) barbituric acid on a filter, wash and dry at 90 C.: it melts at 127-130 C. Incinerate about 1 Gm. of pentobarbital-sodium: the residue responds to tests for sodium carbonate. Boil about 0.5 Gm. of pentobarbital-sodium with 5 cc. of a 25 per cent sodium hydroxide solution: it is decomposed with evolution of ammonia. Dissolve about 0.3 Gm. of pentobarbital-sodium in 10 cc. of water and divide into two portions; to one portion add 1 cc. of mercuric chloride solution: a white precipitate results, soluble in an excess of ammonia; to the other portion add 5 cc. of silver nitrate solution: a white precipitate results, soluble in an excess of ammonia.

Dissolve about 0.5 Gm. of pentobarbital-sodium in 50 cc. of water, add 5 cc. of diluted nitric acid and filter through paper: separate por-

tions of 10 cc. each of the filtrate yield no opalescence on the addition of 1 cc. of silver nitrate solution (*chloride*); no turbidity on the addition of 1 cc. of barium nitrate solution (*sulphate*). To about 0.2 Gm. of pentobarbital-sodium in 25 cc. of water, add 1 cc. of diluted hydrochloric acid, filter through paper: the filtrate yields no coloration or precipitation on saturation with hydrogen sulphide (*salts of heavy metals*). Add about 0.1 Gm. of pentobarbital-sodium to 1 cc. of sulphuric acid: the solution is colorless (*readily carbonizable substances*). Transfer about 1 Gm. of pentobarbital-sodium, accurately weighed, to a glass stoppered cylinder, add 50 cc. of anhydrous ether, stopper and shake for ten minutes; decant the supernatant liquid through filter paper and repeat twice, using 25 cc. and 15 cc. portions, respectively, of ether, utilizing the same filter; evaporate the combined filtrates to dryness in a tared beaker and dry to constant weight at 90 C.: the residue does not exceed 0.2 per cent (*uncombined ethyl [1-methylbutyl] barbituric acid*).

Dry about 1 Gm. of pentobarbital-sodium, accurately weighed, to constant weight at 90 C.: the loss does not exceed 2 per cent. Transfer about 0.5 Gm. of pentobarbital-sodium, accurately weighed, to a suitable Squibb separatory funnel, add 50 cc of water, followed by addition of 10 cc. of diluted hydrochloric acid; extract with eight successive portions of ether of 25 cc. each, evaporate the combined ethereal extractions to dryness in a stream of warm air and dry to constant weight at 90 C.: the amount of ethyl (1-methylbutyl) barbituric acid corresponds to not less than 90 per cent nor more than 91 per cent, calculated to the dried substance. Transfer the acidulated aqueous portion from the foregoing immiscible extraction to a tared platinum dish and evaporate to dryness on a steam bath; to the residue obtained add 5 cc. of sulphuric acid; heat *cautiously* until the excess of sulphuric acid has been volatilized; repeat twice, using portions of 1 cc. each of sulphuric acid each time; add about 0.5 Gm. of ammonium carbonate; ignite to constant weight, and weigh as sodium sulphate: the per cent of sodium corresponds to not less than 8.9 per cent, nor more than 9.4 per cent when calculated to the dried substance.

Capsules Pentobarbital-Sodium-Abbott, 1½ grains: Each capsule contains pentobarbital-sodium-N. N. R., 0.1 Gm. (1½ grains).

Manufactured by the Abbott Laboratories, North Chicago, Ill. U. S. patent applied for. No U. S. trademark.

Pulvules Pentobarbital-Sodium-Lilly, 1½ grains: Each pulvule (capsule) contains pentobarbital-sodium-N. N. R., 0.1 Gm. (1½ grains) and starch, 0.13 Gm.

Manufactured by Eli Lilly & Co., Indianapolis, Ind. U. S. patent applied for. No U. S. trademark.

REPORTS OF THE COUNCIL

Silver Nitrate Ampules and Capsules

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE APPENDED REPORT OF THE A. M. A. CHEMICAL LABORATORY. IN RECOMMENDING ENDORSEMENT AND PUBLICATION OF THIS REPORT THE COUNCIL'S REFEREE EXPRESSED GRATIFICATION AT THE REASSURANCE GIVEN BY THE REPORT THAT THE WAX CAPSULES DO NOT INACTIVATE THE SILVER NITRATE. HE FURTHER CALLED ATTENTION TO THE FACT THAT THE USE OF GLASS AMPULES MAY BE AN OPEN INVITATION TO ACCIDENT.

W. A. PUCKNER, Secretary.

INVESTIGATION OF SILVER NITRATE AMPULES AND CAPSULES

In December, 1929, the A. M. A. Chemical Laboratory reported the results of an examination of a proprietary brand of wax ampules[1] containing mercuric chloride in a fatty base. It was shown that the lining of the collapsible ampule had reacted with the mercuric chloride, so that the amount of mercuric chloride remaining in the ointment was only about 10 per cent of the amount claimed. Subsequent to the issuance of this report, the firm obtained the services of an independent investigator who confirmed the Laboratory's observations and the product was then promptly removed from the market[2] by the manufacturer.

In view of the fact that the wax ampules were found to react with the mercuric chloride, the suggestion was offered by one of the laboratory correspondents to determine whether or not the silver nitrate content of wax ampules containing silver nitrate might be affected similarly. Original packages of various brands of solutions of silver nitrate 1 per cent in wax ampules (to be used for the prevention and treatment of ophthalmia neonatorum) were purchased on the open market and subjected to chemical examination.[3]

PART I

The composition of the ampules (capsules) varied; some were essentially composed of beeswax, others beeswax with an inner lining of paraffin, while those of E. R. Squibb & Sons were patented.[4] Within either the trade package or the small individual containers were circulars explaining the methods of using the wax ampule and quantity to be instilled in the eye. Only one manufacturer, the H. K. Mulford Company, stated amount contained in each ampule, namely ". . . each ampule containing five drops of Solution Silver Nitrate, 1%." According to the label on either the trade package or the separate containers, each ampule was stated to contain a 1 per cent solution. The amount of silver nitrate was determined by the official method.[5] The results of the quantitative determinations are given in table 1.

TABLE 1.—*Quantitative Determinations on Wax Ampules*

Brand	Weight of Solution Obtained from Ampules, Gm.	Variation Factor × 100*	Per Cent of Silver Nitrate Found in Solutions Examined	Average Percentage
The Cutter Laboratory....	0.1767	47.84	1.04	1.05
	0.2133		1.14	
	0.2631		0.99	
Lederle Antitoxin Laboratories	0.1839	13.34	1.02	1.05
	0.1951		1.05	
	0.2080		1.09	
Eli Lilly & Co., Inc.....	0.2539	5.74	1.16	1.15
	0.2557		1.14	
	0.2643		1.17	
H. K. Mulford Company..	0.1289	62.56	1.21	1.16
	0.1936		1.13	
	0.2419		1.16	
Parke, Davis & Co.....	0.1231	71.15	1.13	1.12
	0.1613		1.16	
	0.2516		1.09	
E. R. Squibb & Sons....	0.1124	41.25	1.33	1.29
	0.1710		1.36	
	0.1869		1.20	
Swan-Myers Company	0.0742	25.58	1.09	1.17
	0.0824		1.29	
	0.1123		1.16	
	0.1204		1.17	

* The variation factor was obtained by dividing the difference of the two extremes in weight of the solutions by the means of all the weights recorded for each respective brand.

From the results recorded in table 1, it will be noted that all the products were found to be of the strength claimed (that is, 1 per cent silver nitrate) to 36 per cent above the desired strength. The quantity of solution obtained from the ampules of each respective brand, as well as the quantity contained in the ampules of various firms, varied considerably.

TABLE 2.—*Quantitative Estimations on Glass Ampules*

	Weight of Solution Obtained from Ampules, Gm.	Amount Claimed by the Firms	Per Cent of Silver Nitrate Found in Solutions Examined	Average Percentage
Abbott Laboratories	0.9770	1.00 cc.	1.14	1.12
	1.0870		1.12	
	1.1720		1.11	
G. D. Searle & Co.....	0.4931	0.70 cc.	1.14	1.09
	0.5499		1.04	
	0.8062		1.10	
Sharp & Dohme.....	0.5140	10 min.	1.04	1.01
	0.5951	(0.6 cc.)	1.02	
	0.7668		0.93	

PART II

As the Laboratory had examined the wax ampules, it was decided to investigate other brands of silver nitrate solutions contained in glass ampules that were offered for the same purpose. Original packages of these were purchased and subjected to a similar examination.

1. Bichloridol, A. M. A. Chemical Laboratory Report, J. A. M. A. **93**: 1971 (Dec. 21) 1929.
2. Harger, R. N.: Where is the Bichloride in "Bichloridol," Correspondence, J. A. M. A. **94**: 579 (Feb. 22) 1930.
3. Shortly after this investigation had been begun, it was noted that several of the firms whose products were being examined had formed mergers, namely, the H. K. Mulford Company and Sharp & Dohme, and Swan-Myers Company and the Abbott Laboratories.
4. U. S. Patent, 1,551,784 issued Sept. 1, 1925, to Sidney O. Barnstead of St. Louis, assignor to the Theroz Company of New York, states "Capsules at the present time adapted as carriers or containers of butter-color for oleomargarine comprise in their composition gelatine or glue or both, mixed with varying amounts of glycerine, dextrin, acacia, starches, and other diluents, the greater the percentage of glycerine, the softer the capsule."
5. United States Pharmacopeia X, p. 62.

The results of the quantitative estimations are presented in table 2. From this table it will be noted that the strength of silver nitrate solution and the quantity present in the glass ampules conform well with the claims.

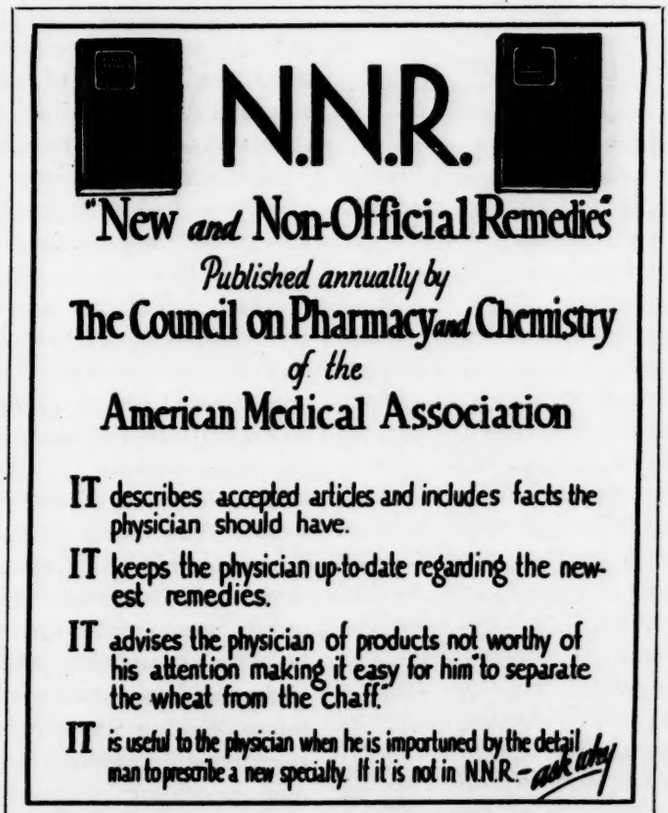
COMMENT

It is well to point out that the amount of silver nitrate obtained from a drop released from a wax ampule is considerably less than that from a glass ampule because the size of the opening is generally that of the size of a pin or hypodermic needle, whereas in the case of glass ampules the opening is larger and the amount of silver nitrate delivered is greater. It would be well for those who are using silver nitrate in the eyes of the new-born to bear in mind that in the case of wax ampules more than one drop should be delivered.

The glass ampules have one point against them: In breaking off the tip of the ampule it sometimes happens that a fragment of glass falls back into the ampule and thus inadvertently may be transferred to the new-born baby's eye. On the whole, the dangers from this would appear to overcome the other advantages of the glass ampule.[6]

CONCLUSIONS

An examination of the various brands of silver nitrate 1 per cent contained in both wax and glass ampules shows that the strength of the silver nitrate solution is generally somewhat greater than the amount claimed and that practically none of the silver is absorbed by the wax ampule. The quantity of solution found in the *glass* ampules complied with that which was claimed. On the other hand, in the case of the *wax* ampules not only did the quantity of solution contained vary in each respective brand, but the products of the various firms differed markedly, ranging from as low as 0.07 cc. to as high as 0.26 cc. The wax linings do not react to any appreciable extent with the silver nitrate solutions in the specimens which were examined.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"New and Non-Official Remedies"
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The Council on Pharmacy and Chemistry
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American Medical Association
IT describes accepted articles and includes facts the physician should have.
IT keeps the physician up-to-date regarding the newest remedies.
IT advises the physician of products not worthy of his attention making it easy for him to separate the wheat from the chaff.
IT is useful to the physician when he is importuned by the detail man to prescribe a new specialty. If it is not in N.N.R.—ask why

The above is a reduced reproduction of a poster that has been displayed at the exhibits of the Council on Pharmacy and Chemistry at the annual sessions of the American Medical Association for a number of years. There is no better way of keeping up to date on the newer remedies than to follow the work of a competent, unbiased group of scientific investigators, working altruistically in the interest of the medical profession. The Council on Pharmacy and Chemistry is such a group. N. N. R. is its list of accepted products.

OPINIONS OF THREE OBSTETRICIANS

The foregoing report was sent to three leading obstetricians asking for their opinions, particularly as to whether or not one very small drop of silver nitrate solution (1 per cent) is sufficient for prophylaxis of the eye in the new-born. (As the report shows, the wax ampules vary considerably in their contents and the size of the drop which is emitted from them is very much smaller than the "official" drop.) The second point on which the obstetricians' opinion was desired is whether or not in their experience there is a serious danger from fragments of glass which might occur after breaking the glass ampule.

The reply of the first obstetrician was as follows:

In reply to the question in your second paragraph, may I say that it seems to me that one small drop of silver nitrate solution is scarcely sufficient for good prophylaxis in the eye of the new-born. Even though one drop should in every case in which ampules are used be accurately placed within the conjunctival sac, the amount would still be rather scanty although probably in most cases it would suffice. However, one must recognize the likelihood of the loss of solution in many cases, as babies will not lie perfectly quiet and often more than one attempt must be made to get the solution in.

I note also that your report indicates that the drop which the ampule emits is smaller than the "official" drop given, 0.06 cc. In my opinion, therefore, the amount would be insufficient.

As to the second question, that contained in paragraph three of your letter, as to whether serious danger exists from fragments of glass which might remain within the glass ampule after breaking the neck of it, I would say that this danger certainly exists. It is probably an accident which would not happen very often but if it did occur the consequences would be serious enough to warrant very serious consideration.

I am surprised to note in your article that the amount of silver nitrate solution contained in various ampules varies so widely. An ampule containing, as you report in one instance, 0.07 cc., would be quite insufficient.

Another obstetrician replied as follows:

I concur with everything in the draft, especially that portion which deals with the danger of using glass ampules as containers for silver nitrate. I personally believe that in hospitals the simplest and safest procedure is to make up small bottles of 1 per cent silver nitrate once a week. The solution can easily be made and the administration from a bottle by means of a medicine dropper is a very simple procedure. Physicians who deliver patients at home and even midwives can carry small bottles of silver nitrate in their obstetrical bag, but the danger is that some physicians and midwives may not be scrupulous enough to make up fresh solutions once a week. For them, wax ampules would be advantageous. If the manufacturers would devise some means of standardizing the amount in each wax ampule, the ampules could be recommended. A physician or midwife, however, should make a hole sufficiently large to permit the escape of a drop at least the size of the "official" drop (0.06 cc.).

If there is any further information you would like to have, I shall be glad to give it to you.

The third obstetrician replied:

I cannot answer your first question specifically, but I imagine that even a small drop of 1 per cent nitrate of silver solution would serve the indicated purpose, for the reason that after we have applied an ordinary drop and allowed it to remain in situ for a few minutes, we wash out the excess with normal saline solution.

Regarding the second question: I do not believe that there is any great danger of injury to the child from fragments of glass derived from the breaking of the glass ampule; and I imagine it would occur only when the user was grossly careless.

The Laboratory cannot agree as to the lack of danger from fragments of glass. It tried a number of experiments under careful conditions, and the instances in which fragments of glass were found were quite numerous.

6. A series of glass ampules was opened to observe fragmentation of the glass and possibility of some fragments being delivered in the drops of silver nitrate. The observations were made by three different individuals. In the case of the Abbott brand, the incidence of fragmentation was the largest, in some cases scoring 50 per cent, while fragments of glass were actually found in the delivered contents in about 30 per cent of the trials. The Sharp & Dohme ampules are constructed with more safeguards, so that the incidence was about one half that of the former. In case of the third brand, that of G. D. Searle & Co., the incidence of fragmentation was less than 5 per cent and in none of the experiments were glass fragments observed in the delivered drops. The Searle Company ampule is improved over the other two by (*a*) having a constriction in the glass sealed end of the ampule, and (*b*) a file is furnished as well as four rubber bulbs. The use of glass ampules entails, therefore, a certain element of hazard, in the opinion of the Laboratory.

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SATURDAY, SEPTEMBER 5, 1931

EDEMA

Until recently the development of edema, such as is commonly associated with kidney disease, was ascribed as a rule to changes in the permeability of the blood vessels of the body. One hypothesis, for example, postulated an increased permeability of the capillaries secondary to toxic injury, expressing itself in the glomerular capillaries by albuminuria and anatomic renal disease, and in the cutaneous and serous capillaries by edema. The fluid thus segregated is rich in protein. Indeed, it is much like an inflammatory exudate. Experimentally an edema of this type can be produced by damage to the capillaries through use of a variety of irritants—so-called capillary poisons. An analogy between this sort of experimental edema and the dropsy of Bright's disease seems to have been established.

Recent years have furnished the demonstration that edema may arise without any renal, cardiac or capillary damage as the significant factors. Diets poor in protein are liable to give rise to edema. Herein is now believed to lie the causation of the so-called war dropsies that have been imitated experimentally in animals kept for long periods on rations adequate in all respects other than their content of protein. In such instances the protein content of the blood plasma tends to be low, edematous manifestations appearing in almost all instances when it drops to 3 per cent. For example, Shelburne and Egloff [1] of Harvard University Medical School have produced edema in a dog by a diet low in protein but adequate in carbohydrate and fat. Sodium chloride and sodium bicarbonate increased the edema, while potassium chloride did not. The amount of edema seemed to be determined by the quantity of the intake of the sodium ion. There are types of so-called human nephrosis in which large losses of protein through the kidneys into the urine are attended by low serum protein content and eventually some edema.

A comparable result has been produced by several investigators [2] through removal of plasma proteins directly from the blood. The process, known as plasmapheresis, consists in withdrawing a volume of blood, removing the corpuscles by centrifugation and returning them suspended in Ringer's solution to the circulation. Edema may follow this method of depleting the plasma proteins. It has remained for Leiter [2] of the University of Chicago to demonstrate conclusively that the edema thus produced by adequate plasmapheresis and resulting reduction of the plasma proteins is quite unlike the exudative type occurring in nephritis. The edema fluid is poor in protein, the latter being essentially of the same order of magnitude as the concentration of protein in normal cerebrospinal fluid and in other ultrafiltrates of the blood. Incidentally there are instances of nephrotic (versus nephritic) edema in man in which the fluid segregated in the tissue spaces was found to have a low protein content.[3]

How are such variations in the chemical make-up of edema fluid to be explained? Why should it be now rich, now poor, in protein? An adequate interpretation seems to be afforded by an hypothesis ventured long ago by Starling, the late English physiologist. He held that the exchange of water between the blood and the tissue fluids through the capillary wall is determined by a delicate balance between the hydrostatic pressure in the capillaries and the osmotic pressure of the plasma proteins. Removal of the latter would thus lead to filtration of protein-free fluid into the tissue spaces. This explains the edema of nephrosis. It can be precipitated in a massive way by administration of large amounts of fluid. The clinician will be expected in the future to realize that there are distinctions between edema fluids. An understanding of this may lead to a readier discovery of the underlying causes of the production of edema in individual cases. The recognition of nephrotic, or low protein, edemas is thus quite significant. Of course, in any event an adequate supply of salt and water is an important accessory factor; for, regardless of a tendency to edema, little transudate can be formed without them. As Leiter has expressed it in reference to his experimentally produced edemas in dogs, the administered saline solution is not the cause of edema any more than salt and water are the actual cause of most clinical edemas. However, no edema is possible without an endogenous or exogenous supply of the chief constituents of edema fluid; hence all intercellular edemas are to this degree dependent on a proper supply of salt and water. Therefore it is not at all remarkable that patients may lose some of their edema without any significant increase in the plasma proteins, provided they are kept on a low intake of salt and fluid or are given diuretics that somehow produce a negative salt and water balance. This situation has been repeatedly overlooked by authors who are unwilling to accept the important position of the plasma proteins in certain clinical edemas.

1. Shelburne, S. A., and Egloff, W. C.: Experimental Edema, Arch. Int. Med. **48**: 51 (July) 1931.

2. Shelburne and Egloff (footnote 1). Leiter, Louis: Experimental Nephrotitc Edema, Arch. Int. Med. **48**: 1 (July) 1931.

3. Epstein, A. A.: J. Exper. Med. **20**: 334, 1914.

ETIOLOGY OF GALLSTONES

One of the perennial problems confronting the pathologist is the etiology of gallstones. These calculi ordinarily consist of cholesterol alone or in admixture with bile pigments, calcium phosphate and adventitious iron in various proportions. The condition of the bile in the gallbladder, where gallstones usually develop, appears to be uniquely favorable for the precipitation of those biliary constituents of which the calculi consist. Water is rapidly removed from the bile in the gallbladder, which has the effect of increasing the concentration of all the substances in solution that are not absorbed along with the water. Furthermore, as has been pointed out again by Elman and Taussig,[1] liver bile which has been subjected to the influence of the mucosa of the gallbladder contains far more cholesterol per gram of hepatic tissue drained than does the bile drawn off directly from the hepatic ducts. This increase in cholesterol is much greater than can be accounted for by the desiccating action of the gallbladder and indicates that cholesterol is added to the bile by the walls of this viscus. These studies were made on dogs but, despite the circumstances apparently propitious for the formation of gallstones, it has proved extremely difficult to induce cholelithiasis in this species. It seems that other factors than concentration play an important part in the etiology of such concretions.

An explanation for the difference in readiness of formation of biliary calculi between man and the dog is offered by Andrews, Schoenheimer and Hrdina.[2] On the basis of recent studies these investigators point out that cholesterol is held in solution in bile in the form of a complex with the bile salts, combinations which have been made in the laboratory from pure bile salts. Large amounts of these complexes have been isolated from human bile but only small quantities from dog and ox bile. When an aqueous solution of this complex is dialyzed, the bile salts pass through the membrane and the cholesterol is precipitated; the normal wall of the gallbladder does not permit the passage of bile salts through it without cholesterol. However, when the mucosa is diseased, bile salts have been shown to decrease while the cholesterol has markedly increased. A comparison of the ratio of bile salts to cholesterol in normal gallbladder bile with that in the mixed bladder bile from thirty cases of cholelithiasis at necropsy shows a much lower value in the latter group, indicating that some factor has operated to increase the cholesterol content of the bile in relation to the bile salts. The Chicago investigators believe that "cholesterol stones are due to a faulty differential absorption of bile acids and cholesterol by the abnormal gallbladder mucosa."

The efforts to elucidate the etiology of gallstones have been assiduous and long continued but, it must be admitted, they have not yielded information leading to an unequivocal or clear conception of the processes involved. Part of the difficulty has been the lack of information concerning the physiology of the gallbladder; once the normal activity is determined, abnormal circumstances can more easily be explained. The paucity of reliable data on the entire subject is an excellent argument for the value of laboratory animals in medical research; the common experimental animals do not readily develop cholelithiasis and the lack of progress in determining the etiology of this condition in man is due, in no small measure, to the inability to produce and to study it under the controlled conditions possible only with laboratory animals.

1. Elman, Robert; and Taussig, J. B.: Proc. Soc. Exper. Biol. & Med. 28: 1068 (June) 1931.

2 Schoenheimer, Rudolf; and Hrdina, Leo: Proc. Soc. Exper. Biol. & Med. 28: 944 (June) 1931. Andrews, Edmund; Schoenheimer, Rudolf; and Hrdina, Leo: Ibid., pp. 945, 947.

METABOLISM IN SCURVY

In the present-day consideration of the pathology of the various recognized deficiency disorders, it is logical to inquire regarding possible metabolic disturbances as well as to investigate the consequent structural defects that characterize the disturbance due to lack of some essential food constituent. Studies in this field have not yet been productive of much convincing information. The investigation of rickets and related disorders has, of course, left no doubt that there are profound disturbances in the metabolism of those elements that contribute to the inorganic structure of the bones. Nevertheless, in a recent review of the subject A. F. Hess[1] has asserted that we are still in the early period of the investigation of rickets by means of metabolic studies. Although it does not seem probable that its pathogenesis will be solved in this way, it is a method which always will be of great value for controlling the theories and hypotheses brought forward in connection with pathogenesis. At present there is a tendency to broaden the scope of metabolic studies, to consider the rôle not only of inorganic but also of organic constituents in the blood, the tissues and the excretions. It is probable that this trend will be developed in the near future. It seems quite possible, Hess concludes, that more may be learned concerning the pathogenesis of rickets through an indirect approach, for example, through studies of the pharmacologic action of viosterol or of ultraviolet irradiation, than has been accomplished heretofore by direct investigation of the body exchanges of infants or of animals suffering from rickets.

It might be expected, in view of our long acquaintance with scurvy and the possibility of reproducing it so characteristically in animals by dietary means, that even more would be known regarding this type of avitaminosis. There has, however, seemingly been even greater paucity of dependable data in regard to metabolism in scurvy, although here, too, careful investigation should afford clearer insight into some aspects of the disorder. The few contributions on the metabolism in

1. Hess, A. F.: Rickets, Including Osteomalacia and Tetany, Philadelphia, Lea & Febiger, 1929.

adult scurvy, infantile scurvy and experimental scurvy in animals have been far from concordant. When Hess [2] summarized our knowledge a decade ago he pointed out that great care must be exercised that the disorder, in the case of the study of infants at least, is not complicated by rickets. He remarked that the few metabolic studies up to 1920 harmonized on one point only—the positive balance of calcium during the active stage of the disease.

Since then Shipp and Zilva [3] have concluded that in experimental animals the pathologic changes which form the syndrome of scurvy are not preceded by any disturbance in the absorption or in the retention of nitrogen. And more recently Humphreys and Zilva,[4] likewise working in the Lister Institute, London, have asserted that there is no deviation from the normal in the absorption or retention of calcium or of phosphorus before or during the development of scurvy in guinea-pigs. Disturbances in the calcium and phosphorus balances are noted only in the last stages of the experiment when all the functions of the animal organism become deranged by the disease. Such delayed changes, which are observed in many chronic conditions, must be regarded as secondary in character and not specific for the disease.

Current Comment

ARISTIDES AGRAMONTE

The death of Aristides Agramonte in New Orleans, August 17, at the age of 63, removes the last of the famous Yellow Fever Commission of 1900 that paved the way for the eradication of a dreaded disease of mankind. The names of the four members, Walter Reed, Jesse Lazear, James Carroll and Aristides Agramonte, have long been enrolled in medicine's hall of fame. Lazear and Carroll gained lasting recognition because of the superb self sacrifice that they displayed in the attack on a deadly enemy of human kind—the etiologic agent of yellow fever. The search for visible microbes had failed. Reed was thereupon determined to test the theory of an insect vector, recalling the insistence of Dr. Carlos Finlay of Havana that yellow fever is caused by a mosquito. Carroll permitted himself to be bitten by a female stegomyia that had fed on victims of the disease. He barely survived the attack that followed. Indeed, he died only a few years later, his death at an early age presumably being hastened by the after-effects of the fever. Lazear succumbed, Sept. 25, 1900, to an accidental bite from an infected mosquito. Agramonte, the sole Cuban of the group working in Cuba, was immune, having survived yellow fever in earlier years. To him fell the less dramatic task of the postmortem investigation of the victims. To realize what the contribution of these undaunted workers means to humanity, one must recall the state of medical knowledge at the end of the last century. Insect transmission of disease was barely established. Filtrable viruses had not yet attained recognition. The nature of the *materies morbi* of yellow fever was unsuspected, and the mortality in the epidemic centers was overwhelming. Facing such a combination of ignorance and medical helplessness, the Yellow Fever Commission of the U. S. Army succeeded nevertheless in establishing the transmission of the disease through the agency of mosquitoes. This scientific discovery paved the way for liberating the tropics from a peril that had taken its toll in hundreds of thousands. The sacrifice of volunteers was by no means ended with the human experiments in Cuba in 1900. Yellow fever, though manageable, still presents its problems. And there are still martyrs of science in the newer history of the attempts to unravel its secrets. In recent years the names of Stokes, Wakeman and Noguchi, among others, may be recalled—names that should not go unhonored.

A SEROLOGIC HAZARD

One of the most significant changes in immunology during the last decade has been the growing recognition of the complexity of vaccines and the resulting multiplicity of the cytologic and biochemical factors involved in active and passive immunization. That this plurality of antigenic factors is of clinical significance is strikingly illustrated by the recent demonstration by Eisler [1] of the National Serologic Institute, Vienna, that certain strains of the Shiga bacillus contain an "antigenic quotient" biochemically identical with an "antigenic factor" in human tissues. As a result of this overlapping specificity, any antiserum produced by immunizing lower animals against the Shiga bacillus may conceivably contain a collateral specific cytotoxin for human tissues. There is historical evidence that many antiserums tried and discarded in clinical medicine have contained such unsuspected human cytotoxins and that a repetition of previous clinical tests with antigens free from overlapping human specificity may lead to therapeutic success. The presence of a bacterial component similar to or identical with a biochemical factor in animal tissues has thus far been mainly of theoretical interest. Nearly twenty years ago, Forssman [2] called attention to a thermostable cytologic component widely distributed in nature. This substance was present in numerous bacteria and in many animal tissues. It was present, for example, in erythrocytes and spermatozoa of certain animal species but absent in their other tissues (e. g., sheep). In other animals (e. g., guinea-pigs) it was present in all cells except the erythrocytes. It was not found in the rabbit, rat, ox or swine, or in human tissues.[3] Eisler compared his new Shiga component with the Forssman antigen and was able to demonstrate their biochemical difference. The Eisler fraction, there-

2. Hess, A. F.: Scurvy: Past and Present, Philadelphia, J. B. Lippincott Company, 1920.
3. Shipp, H. L., and Zilva, S. S.: Metabolism in Scurvy: II. The Nitrogen Absorption and Retention of Guinea-Pigs, Biochem. J. **22**: 1449, 1928.
4. Humphreys, F. E., and Zilva, S. S.: Metabolism in Scurvy: III. The Absorption and Retention of Calcium and Phosphorus by Guinea-Pigs, Biochem. J. **25**: 579, 1931.

1. Eisler, M.: Ztschr. f. Immunitätsforsch. **67**: 38, 1930.
2. Forssman, J.: Biochem. Ztschr. **37**: 78, 1911.
3. A review of the earlier literature on heterophil antigens is given by Jordan, E. O., and Falk, I. S.: The Newer Knowledge of Bacteriology and Immunology, University of Chicago Press, 1928, chap. LIII, p. 733.

fore, is apparently a new, previously undescribed bacterial factor, having about the same relationship to human medicine that the Forssman antigen has to laboratory science.

Association News

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts at 10 a. m. on Monday and 10:30 a. m. on Saturday, over Station WBBM (770 kilocycles, or 389.4 meters).

The program for the week is as follows:

September 7. Speech Habits and Personality.
September 12. Gentle Sleep.

Five minute health talks may be heard over the Columbia Broadcasting System on Monday, Wednesday, Thursday and Saturday from 1 to 1:05 p. m., Chicago daylight saving time.

The program for the week is as follows:

September 7. Are You Gambling With Life?
September 9. Can You Breathe Through Your Nose?
September 10. Where the Wool Ought to Grow.
September 12. High Blood Pressure—A Disease of American Life.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Unlicensed Practitioner Fined. — Francis Hannon, Los Angeles, pleaded guilty to a charge of practicing medicine without a license, July 28. Hannon had been employed as a painter at the General Hospital but represented himself as a physician to patients and accepted money to treat them. He was arrested after the patients had complained that they had received no benefit from his "treatments." Hannon received a suspended $100 fine and was placed on probation for six months.

COLORADO

State Medical Meeting at Colorado Springs, September 15-17. — The sixty-first annual session of the Colorado State Medical Society will be held at Colorado Springs, September 15-17, under the presidency of Dr. William A. Kickland, Fort Collins. Guest speakers will be Drs. Fred M. Smith, Iowa City, on "Clinical Manifestations and Treatment of Coronary Artery Disease"; Louis E. Viko, Salt Lake City, "Cardiac Asthma"; Arthur J. Cramp, Chicago, "Patent Medicines and Public Health"; Henry S. Plummer, Rochester, Minn., "Adenomatous and Exophthalmic Goiter," and Ralph H. Major, Kansas City, Mo., "Chronic Nephritis." A symposium on the arthritides will be presented by four members of the faculty of the University of Colorado School of Medicine, Denver: Drs. Lorenz W. Frank, Clough T. Burnett, Charles E. Sevier and Charles N. Meader. The annual golf tournament will be held Tuesday, September 15, at the Broadmoor Golf Club, and the presidential reception, banquet and dance, Wednesday, September 16, at the Broadmoor Hotel.

DELAWARE

Dental Service for School Children.—With the opening of the school year in September, a dental hygiene service will be instituted in Delaware public schools. It is planned to divide the state into three sections, corresponding to the three counties. It is hoped to have two dental hygienists in each county. They will examine the mouths of all the children in grades one through six and and give each child needing it a card stating his need of dental attention. The children will be asked to have the necessary work done and to have their dentists sign the card saying that the mouth of the child is in good condition. Statistics will be kept on a three year plan. When the group now in the first grade has reached promotion time in the third grade, the conditions in the mouths will be noted and the results charted. When this group reaches the sixth grade, the mouths will again be examined and the results of six years of dental health education tabulated. The educational program will include a series of classroom lectures, to be given by the hygienists, it is said, and preschool clinics for prophylaxis will be conducted during the summer months.

Five Year Health Program.—As the result of recent surveys of health activities, the Delaware State Board of Health has inaugurated a five year plan of sanitation which will include improvement in milk pasteurization, eradication of typhoid, sanitation of canneries, food control work, sanitation of state institutions, and oyster control work. According to *Delaware Health News*, it is hoped that this program will realize three objectives: the actual application of known sanitary laws to the sanitation of the community's water, milk, food, sewage, garbage and communicable disease; the actual provision of each citizen with the knowledge, means and incentive for promoting health and preventing disease, and the coercion of dissenters from accepted health and sanitary practices by legislation wherever the action of such a dissenter might harmfully influence the health of others. Two inspectors were recently added to the state department of health, one of whom is to devote his entire time to collecting milk samples from all over the state, and the other practically all of his time to the inspection of dairies. At present, it was pointed out, about 45 per cent of the milk in the state is pasteurized, and the cows are 100 per cent tuberculin-tested.

GEORGIA

Health at Atlanta. — Telegraphic reports to the U. S. Department of Commerce from eighty-two cities with a total population of 36 million, for the week ended August 22, indicate that the highest mortality rate (16.9) appeared for Atlanta, and the rate for the group of cities as a whole, 10.1. The mortality rate for Atlanta for the corresponding week of 1930 was 8.1, and for the group of cities, 9.5. The annual rate for eighty-two cities was 12.4 for the thirty-four weeks of 1931, as against a rate of 12.3 for the corresponding weeks of 1930. Caution should be used in the interpretation of these weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits, or that they have a large Negro population, may tend to increase the death rate.

FLORIDA

Society News. — The Dade County Medical Society was addressed, June 5, by Drs. Joseph Matthieu and John Ritter, Miami, among others, on "Laboratory Control and Syphilis Treatment" and "Differentiation between Leprosy and Tuberculosis," respectively.——A recent meeting of the Duval County Medical Society was addressed by Drs. Ralph N. Greene, Jacksonville, on "Relationship of the Neurologist to the Practice of Medicine and Surgery," and Raymond Sanderson, Jacksonville, "The Aerial Ambulance—Its Use in War." Dr. James Ralston Wells, Daytona Beach, also addressed this meeting.—— Dr. Mark F. Boyd, Tallahassee, addressed the Jackson County Medical Society, July 14, on malaria.

INDIANA

New Quarantine Ruling.—The item under this title published in THE JOURNAL, July 11, p. 107, stating to the effect that the head of the family may come and go freely from his home while it is quarantined, referred to a local ruling by the board of health of the city of Fort Wayne, and not a ruling by the state board of health, although it was sanctioned by the state board of health. Thus permission is given to the wage earner to go and come from the quarantined home when he does not come in contact with the patient or with the discharges from the patient.

State Medical Meeting at Indianapolis, September 23-25.—The eighty-second annual session of the Indiana State Medical Association will be held at the Claypool Hotel, Indianapolis, September 23-25, under the presidency of Dr. Alois B. Graham, Indianapolis. The scientific program will include papers by Drs. Delbert O. Kearby, Indianapolis, on "Peroral Endoscopy as an Aid in Diagnosis"; Paul D. Crimm, Evansville, "Nontuberculous Infections of the Lungs"; Basil M. Taylor, Portland, "Prenatal Care from an Endocrine Standpoint and Its Effects on the Growth and Final Development of the Baby"; Gordon B. Underwood, Evansville, "Treatment of Common Skin Diseases"; Otto R. Spigler, Terre Haute, "Uterine Bleeding, the Cause with Special Reference to Malignancies and Their Treatment"; Bonnelle W. Rhamy, Fort Wayne, "Friedman, Reinhart, Scott Hormone Test for Preg-

nancy"; Walter L. Portteus, Franklin, "Delivery Technic in the Home"; Beaumont S. Cornell, Fort Wayne, "Critical Review of Hypertension"; Harvey H. Martin, LaPorte, "Surgery of the Future"; Harmon L. Stanton, Evansville, "Etiology and Operative Treatment of Squint"; Clifford C. Robinson, Indiana Harbor, "Present Status of Burn Therapy"; Ernest O. Nay, Terre Haute, "Early Prostatectomy," and Paul D. Moore, Muncie, "Traumatic Spine." There will be a symposium on gastro-intestinal diseases, Friday morning, conducted by Drs. Roscoe L. Sensenich, South Bend, Harold D. and Truman E. Caylor, Bluffton, and Henry O. Bruggeman, Fort Wayne. The entertainment will include a golf tournament Wednesday, garden party and reception for all visiting women, theater party, and a visit to the Indianapolis plant of Eli Lilly and Company, luncheons and a banquet. Commercial and scientific exhibits and moving pictures will also feature the meeting.

IOWA

Society News.—Dr. Verl A. Ruth, Des Moines, addressed the Dallas-Guthrie Counties Medical Society, August 12, on "Ewing's Sarcoma."——Dr. Charles H. Mayo, Rochester, Minn., addressed the Farm Bureau Federation at the Iowa State Fair, August 21, on "Diseases of Man Resulting from Animal Infection."

Graduate Course in Surgery.—A graduate course in surgery will be offered to physicians of Iowa at the University Hospitals, State University of Iowa College of Medicine, Iowa City, September 8-11. Complete facilities of the college of medicine will be available for the course, and instruction will be given by members of the faculty. Applications received after the quota of twenty is filled will be placed on file to receive preference in subsequent courses. Further information may be had from Bruce E. Mahan, director of the extension division of the University of Iowa.

KANSAS

Joint Meeting and Clinics.—The Wyandotte County Medical Society, the Jackson County (Mo.) Medical Society and the Kansas City Southwest Clinical Society held a joint meeting, September 1, in Kansas City, with Dr. Drew W. Luten, St. Louis, as the guest speaker. Dr. Luten conducted a heart clinic and addressed the meeting on "Present-Day Concepts in Cardiology." Drs. Harry W. King, Hugh Wilkinson and LaVerne B. Spake, all of Kansas City, conducted a general operative clinic and the following physicians also gave addresses: Drs. Louie F. Barney, on "Treatment of Acute Generalizing Peritonitis"; Clay E. Coburn, "Hypothyroidism"; Clifford C. Nesselrode, "Intestinal Obstruction by Foreign Bodies," and Fred E. Angle, "Treatment of Undulant Fever."

KENTUCKY

Society News.—Among speakers at a conference of public health workers of Kentucky, Tennessee and Missouri, held at Reelfoot Lake, August 21, were Drs. Waller S. Leathers, Nashville, on "Preventive Medicine and Its Relation to Public Health"; Charles P. Coogle, Memphis, "What the Doctor Can Do to Help Control Malaria"; William W. Johnston, Flat River, Mo., "Problems Encountered in Administration of Rural Health Work," and John L. Jones, Louisville, "Epidemiology of Communicable Diseases." A permanent organization to be known as the Mississippi Valley Public Health Workers Association was formed, with Dr. James P. Moon, Tiptonville, Tenn., health officer of Lake County, as president.——Dr. John W. Conklin, among others, addressed the Grayson County Medical Society, Leitchfield, August 20, on "Early Differential Diagnosis of Trachoma and Conjunctivitis."——Drs. Walter Dean and Roy Glenwood Spurling, Louisville, addressed the Christian County Medical Society, Hopkinsville, August 18, on "The Chronic Suppurative Ear" and "Present Status of Surgery of the Sympathetic Nervous System," respectively.

MASSACHUSETTS

Dr. Cannon Awarded Baly Medal.—Dr. Walter B. Cannon, George Higginson professor of physiology at Harvard University Medical School, Boston, has been awarded the Baly Medal of the Royal College of Physicians of London. This medal is conferred in alternate years on the person who is deemed to have distinguished himself most in the science of physiology during the two preceding years.

Personal.—The University of Budapest, Hungary, has conferred on Dr. Harvey Cushing, Boston, the honorary degree of doctor of medicine honoris causa. Thirteen scientists have received this honor since 1895; Carl Theodor Herzog, Bayern; John Shaw Billings, Philadelphia; Rudolf Virchow, Berlin; Lord Joseph Lister, London; A. Retzius, Stockholm; Guido Baccelli, Rome; Emile Roux, Paris; C. Than, Budapest; T. Duka, London; Count A. Apponyi, Budapest; Wilhelm Waldeyer, Otto von Schjerning and F. Schmidt-Ott, all of Berlin.

MISSOURI

Personal.—Dr. James F. Elder, Youngstown, Ohio, formerly health commissioner of Mahoning County, Ohio, has been appointed health director of the third district health unit, recently organized in the drought area, comprising nine counties, with headquarters at Van Buren (THE JOURNAL, August 1, p. 327).

Hospital Completed.—Menorah Hospital, a six-story building, with a capacity of 129 beds, has recently been completed in Kansas City at a cost of approximately $1,250,000. The nucleus for the hospital fund was a bequest of $200,000 by Nathan Schloss and the remainder was raised by the Jewish Memorial Hospital Association. Rooms are equipped with instruments resembling microphones, which pick up sounds as low as a whisper and carry them to the central nursing station. Patients may thus communicate their needs and receive attention promptly. Dr. Alvin J. Lorie has been selected as president of the staff for two years. The nursing staff will be made up entirely of graduate nurses and a social service department will be a feature of the hospital program. The women's auxiliary of the hospital association supplied many of the furnishings and presented to the hospital 120 mg. of radium. The hospital is said to be sufficiently endowed to warrant a 25 per cent charity program.

NEW JERSEY

New State Director of Health.—Dr. Jesse Lynn Mahaffey, Haddonfield, was appointed director of health of New Jersey at a meeting of the state department of health, July 7, to succeed David C. Bowen, whose term expired. Dr. Mahaffey was graduated in 1902 from the Medico-Chirurgical College of Philadelphia, which later became the Graduate School of Medicine of the University of Pennsylvania. He has been chief of the medical service at Cooper Hospital, Camden, since 1914. Mr. Bowen, who had been a member of the department staff for twenty-eight years, will continue as chief of the bureau of local health administration after two months' leave of absence granted to him by the board.

NEW YORK

Personal.—Dr. Harry Beckett Lang, of the staff of Willard State Hospital, Willard, has been appointed clinical director at Marcy State Hospital, Marcy. He assumed the new position, September 1.——Dr. William H. Sweeting, Savannah, received a watch as a gift from the Wayne County Medical Society at its meeting, July 7, marking his fiftieth anniversary as a member.

County Hospital Dedicated.—The Lewis County General Hospital at Lowville was formally dedicated, August 4, by Dr. Thomas Parran, Jr., state commissioner of health. This is the first hospital to be built under legislative provisions for state aid to counties, and is the only general hospital in a rural county with 25,000 inhabitants scattered over an area of 1,250 square miles. The new hospital has a capacity of forty beds and was constructed at a cost of about $220,000, which expense the state and the county will share equally.

Committee on Infantile Paralysis.—The president of the Medical Society of the State of New York has appointed a committee on infantile paralysis to cooperate with Dr. Thomas P. Farmer, Syracuse, chairman of the standing committee on public health, in devising means by which family physicians may aid in control of the present epidemic. Members of the committee are Drs. Charles Hendee Smith, New York; Walter D. Ludlum, Brooklyn; John A. Card, Poughkeepsie; Henry L. K. Shaw, Albany; Wardner D. Ayer, Syracuse; Stanhope Bayne-Jones, Rochester, and Clayton W. Greene, Buffalo. Dr. Thomas Parran, Jr., state health officer, reported, August 24, that the outbreak in the state outside New York City was increasing at a rate of about fifty cases a day. Up to August 29, 476 cases had been reported during the month.

Fund for Ophthalmia Neonatorum Patients.—The New York State Commission for the Blind now has a small revolving emergency fund to be used in obtaining immediate treatment for cases of ophthalmia neonatorum when delay in obtaining local funds occurs. Any physician may request assistance from the New York State Commission for the Blind, State Office Building, 80 Centre Street. Should the office be closed, cases may be sent at once to a hospital, if written notice of such action is sent to the office of the commission immediately.

According to *Health News*, the commission does not assume the expense of hospital care for such cases but will underwrite it, pending necessary arrangements for payment. When a local physician requests this aid, a representative of the commission will visit the community at once, at which time arrangements will be completed for obtaining local funds through the department of public welfare.

New York City

Opening of Schools Delayed by Poliomyelitis.—Opening of the public schools of New York will be delayed till Tuesday, September 22, because of the epidemic of poliomyelitis, Dr. Shirley W. Wynne, health commissioner, announced, August 31. Parochial schools will also be delayed in opening for at least a week, Catholic school officials announced. An increase of ten new cases of poliomyelitis was reported, August 29, 432 as compared with 422 the previous week. Comparison of the charted curve of the present epidemic with the curve of the 1916 outbreak, however, led health officials to express the opinion that the disease is waning. The two curves are strikingly similar, according to Dr. John Oberwager, who made the study, but the number of cases this year is about half that in the earlier epidemic. The total number of cases in 1916 from June 1 up to the end of October was slightly more than 9,000; the total this year up to August 29 was 2,679. The highest point of the present epidemic was reached, August 5, when 111 cases were reported.

OKLAHOMA

Dr. Long Resigns as Dean.—Dr. Lewis J. Moorman, Oklahoma City, professor of clinical medicine, was appointed dean of the University of Oklahoma School of Medicine, newspapers reported, August 13, to succeed Dr. Leroy U. Long, who resigned after sixteen years' service. The board of regents, at the same meeting, adopted a resolution barring chiropractors from practicing in the university hospital, according to the press reports. Citing the fact that the university hospital was created primarily for the purpose of giving training and instruction to students in the school of medicine of the University of Oklahoma, the board declared it was necessary to restrict the hospital to the use of doctors of medicine in order to maintain the standing of the school and that it was the intent of the legislature to so restrict it. It was therefore resolved that the privileges of the university hospital be at all times extended to any doctor of medicine now or hereafter licensed or authorized to practice medicine by the present laws of Oklahoma and that any patient in the hospital should have the right to select and receive treatment from any doctor of medicine as thus defined.

PENNSYLVANIA

Society News.—Dr. Hugh H. Young, Baltimore, will address a meeting of the second councilor district of the Medical Society of the State of Pennsylvania, September 10, on "Preoperative and Postoperative Care of Prostatectomy."——At a joint meeting of the Montgomery County Medical Society and the Pennsylvania Mental Hygiene Society, Norristown, September 2, speakers were Drs. Albion C. Besse, Norristown, on "Differentiation Between the Major Psychoses and Minor Psychoses"; Baldwin L. Keyes, Philadelphia, "Psychoneuroses from the Physical Standpoint," and Joseph C. Yaskin, Philadelphia, "Psychoneuroses from the Psychic Standpoint."——Dr. Arthur M. Shipley, Baltimore, addressed the annual meeting of the fifth councilor district of the Medical Society of the State of Pennsylvania, at Piney Mountain Inn, Adams County, July 16, on "Symptoms and Treatment of Injuries of the Chest."

TEXAS

Society News.—Dr. Rex E. Van Duzen, among others, addressed the Dallas County Medical Society, June 11, on "Relation of the Autonomic Nervous System to Urinary Frequency."——Dr. Vester V. Clark, Lubbock, addressed the Lubbock County Medical Society, June 2, on nervous indigestion.——Dr. William G. Phillips, Fort Worth, among others, addressed the Palo Pinto County Medical Society, Mineral Wells, June 1, on disturbances of the endocrine glands.——Dr. Charles F. Carter, Dallas, among others, addressed the Smith County Medical Society, Tyler, June 9, on the Aschheim-Zondek test for pregnancy.——Dr. John O. McReynolds, Dallas, addressed the annual meeting of physicians of the Gulf Coast and Santa Fe Railway, Temple, June 23, on "Traumatic Cataract."——Dr. Robert H. Needham, among others, addressed the Tarrant County Medical Society, Fort Worth, August 4, on "Sunflower Sensitization."

UTAH

State Medical Meeting and Graduate Course.—The thirty-seventh annual meeting of the Utah State Medical Association will be held at Salt Lake City, September 9-11, with headquarters at The Newhouse, under the presidency of Dr. William L. Rich. The scientific program will include papers by Drs. Robert Levy and Herman I. Laff, Denver, on "Some Phases of Sinus Thrombosis"; Norman Vern Peterson, Rye, N. Y., "Infections of the Deep Cervical Fascia and Jugular Thrombosis"; Frederick A. Kiehle, Portland, Ore., "Significance of Uveal Inflammation"; Harrington B. Graham, San Francisco, "Diagnosis of Carcinoma of Larynx"; Harlow Brooks, New York, "Use of Salicylates in Rheumatic Fever"; Glen E. Cheley, Denver, "Nontuberculous Mesenteric Lymph Node Hyperplasia and Inflammation, Its Importance in Abdominal Surgery"; Leslie A. Smith, Ogden, "Clinical Aspects of Our Yearly Epidemics of Bronchitis"; Walker E. Stallings, Boise, Idaho, "Lung Compression in the Treatment of Pulmonary Tuberculosis"; Anton J. Carlson, Chicago, "Nervous Control of Alimentary Tract"; William C. MacCarty, Rochester, Minn., "Why Cancer Is So Frequently Hopeless"; Chauncey D. Leake, Ph.D., San Francisco, "Recent Advances in Drugs Depressing the Central Nervous System"; Dr. Barnet E. Bonar, Salt Lake City, "Factors Influencing Morbidity and Mortality in the New-Born"; O. F. McShane, Salt Lake City, "The Doctor and the Industrial Commission"; Drs. Walter E. Leonard, Los Angeles, "The Surgical Diabetic"; Arthur Steindler, Iowa City, "Reconstruction Work on the Upper Extremity"; Howard Morrow, San Francisco, "The More Common Fungus Infections of the Skin." The seventh graduate course will be held Friday, September 11, at the Salt Lake General Hospital. It will comprise clinics on diseases of the chest, cancer, neurology, internal medicine, orthopedic surgery and dermatology. Speakers on the program will be Drs. Waltman Walters, Rochester, Minn., "Treatment of Gastric Lesions," and John B. Doyle, Los Angeles, "Nervous Manifestations of Pernicious Anemia and Treatment." A charge of $6 is made for the graduate course, the money to be placed in the postgraduate fund.

WISCONSIN

Personal.—Dr. William W. Bauer, health officer of Racine for the past eight years, has been reappointed for a term of four years. New quarters for the health department will be opened in the city hall in October.

Society News.—At a meeting of the eleventh district of the Wisconsin State Medical Society, Superior, August 20, speakers were Drs. William A. Plummer, Rochester, Minn., on "Medical Phases of the Goiter Problem"; Arnold S. Jackson, Madison, "Surgical Phases of the Goiter Problem"; Claude F. Dixon, Rochester, "Cancer of the Colon," and George H. Ewell, Madison, "Prostate Diseases." At an evening session Dr. Cornelius A. Harper, Madison, spoke on organized medicine.——Dr. Otto H. Schwarz, St. Louis, addressed the Marinette and Florence county medical societies, Marinette, August 21, on cesarean section.

GENERAL

Aero Medical Association.—The third annual meeting of the Aero Medical Association of the United States will be held in Kansas City, Mo., September 6-8. Among the speakers will be Col. Glenn I. Jones, chief, medical division, air corps, U. S. Army, on "Army Problems in Aviation Medicine"; Drs. Wade H. Miller and A. Morris Ginsberg, Kansas City, "Metabolic and Serologic Changes in Flight Fatigue," and Dr. Harold J. Cooper, Washington, D. C., "Physical Defect and Flying Ability." A joint meeting will be held, September 8, with the Jackson County Medical Society.

American Dietetic Association.—The fourteenth annual meeting of the American Dietetic Association will be held at the Hotel Gibson, Cincinnati, October 19-21. Included on the tentative program are Drs. Arthur C. Bachmeyer, superintendent, Cincinnati General Hospital, whose subject will be "The Dietitian as an Administrative Officer in the Institution"; Floyd H. Lashmet, Ann Arbor, Mich., "Control of Edema"; James P. O'Hare, Boston, "Present-Day Dietetic Therapy in Nephritis and Allied Conditions"; Julius H. Hess, Chicago, "Infant Feeding," and Martha Koehne, Ph.D., Chicago, "Studies of the Relation of Diet to Dental Caries." Other subjects to be included on the program are child health, school health, health work with adults, public health program, teaching material for medical students, and quality studies of therapeutic diets.

City Health Contest.—The third annual Inter-Chamber Health Conservation Contest, a project of the Chamber of

Commerce of the United States, has been announced. It will cover the year 1931. All cities that have a chamber of commerce affiliated with the national body are eligible to enter the contest. Each city entering the contest will be rated at the end of the year on the basis of the organization and equipment of the local health department for disease control, financial support, both official and voluntary, facilities for health information and education, milk supply, water connections and sewage disposal. Cities that competed in the 1930 contest have been automatically enrolled in the contest for this year. Cities desiring to enter the contest should communicate through the local chamber with the U. S. Chamber of Commerce, Washington, D. C.

Cancer Record of 1930.—The crude cancer death rate, for fifty American cities with an aggregate population of about 30 million, was 122.3 in 1930, having increased from 71.6 in 1906, according to Frederick L. Hoffman, LL.D., of the Prudential Life Insurance Company of America. It was pointed out that, during the last two years, in these fifty cities, the actual number of deaths from cancer has increased from 35,598 to 37,312. Madison, Wis., leads the ten cities with the highest cancer death rates with a rate 231.7 per hundred thousand; San Francisco is second with a rate of 208.5. This is said to be the highest rate ever recorded for San Francisco, the rate having increased from 132.8 per hundred thousand in 1929 to 208.5 in 1930, while the actual number of deaths increased from 1,004 to 1,328. The rates for the five largest cities for 1929 and 1930, respectively, were Chicago, 106.6 and 115; Detroit, 73.8 and 72.3; Los Angeles, 126.2 and 136.1; New York, 114.4 and 116.2, and Philadelphia, 127.1 and 126. The report also indicates that the cancer death rate for all forms increased from 83.2 per hundred thousand in 1920 to 95.9 in 1929.

Medical Subjects on Chemists' Program.—A symposium on endocrine therapy was prominent on the program of the division of medicinal chemistry of the American Chemical Society at its meeting in Buffalo, August 30-September 4. Participants were Allan W. Rowe, Ph.D., Boston, who discussed differential diagnosis of endocrine disorders; Drs. William Engelbach, New York, hypophyseal hormones; Roy G. Hoskins, Boston, and Francis H. Sleeper, Worcester, Mass., endocrine therapy in the psychoses; Israel M. Rabinowitch, Montreal, Que., etiology of diabetes; Jean P. Pratt, Detroit, ovarian therapy, and Leonard G. Rowntree, Rochester, Minn., suprarenal cortex therapy. Among other medical subjects discussed were "Experiments with Metallic Gluconates in Mice with Spontaneous Cancer," by Dr. E. Ellice McDonald, Philadelphia; "Facts and Fallacies in Disinfection," Dr. Herbert C. Hamilton, Detroit; "Normal Arsenic Content of Skin and Hair," Chester N. Myers, Ph.D., and Dr. Binford Throne, Brooklyn; "Energy Exchange in Obesity," Dr. Louis H. Newburgh, Ann Arbor, Mich.; "Vitamins in Canned Foods," Edward F. Kohman, Ph.D., Washington, D. C., and Walter H. Eddy, Ph.D., New York, and "The Function of Cortin," Frank A. Hartman, Ph.D., Buffalo.

Physicians on Program of Safety Congress. — Medical aspects of the safety movement in the United States will be discussed at the twentieth annual Safety Congress and Exposition to be held in Chicago, October 12-16, by the following physicians, among others: Drs. Willard J. Fenton, Phoenixville, Pa., "Advantage of Physical Examination and Reexamination to the Employee"; Clarence O. Sappington, Chicago, "Creating a Safety Consciousness"; Thomas Parran, Jr., Albany, N. Y., "Industrial Hygiene in Relation to Safety"; William A. Evans, Chicago, "Significance of Industrial Health"; James A. Britton, Chicago, "Health Service in Industry"; Ralph C. Hamill, H. Douglas Singer and Hart E. Fisher, all of Chicago, "Mental Aspects of Accidents"; Herman P. Davidson, Chicago, "Good Eyesight Essential in Industry"; Leonard Greenburg, New Haven, Conn., "Cleaning in the Metal Industry"; Royd R. Sayers, Washington, D. C., "Relation Between Illness and Safety in Mining"; Volney S. Cheney, Chicago, "Keeping Industrial Employees Healthy"; H. Burton Logie, New York, "Logical Classification of Accidents"; Earle G. Brown, Topeka, Kan., "How Kansas Passed the Drivers' License Law," and Robert P. Knapp, South Manchester, Conn., "The Medical Department and Reduced Lost Time." Dr. Harold S. Hulbert, Chicago, will present a series of lectures on "Healthy Thinking versus Accident Risk," one each morning of the congress. Charles-Edward A. Winslow, D.P.H., New Haven, will discuss the need for educational standards in industrial nursing, and Harry E. Barnard, Ph.D., Washington, D. C., will give an address on application of the safety recommendations of the White House Conference to the schools.

Rural Health Service in China. — The activities of an experimental health service set up by the Milbank Memorial Fund, of New York, in a rural district in North China are described in a recent quarterly bulletin of the fund. The health demonstration area includes a section of Ting Hsien, with a population of 50,000 persons living within a radius of 6 miles. More than 90 per cent of these were illiterate until the beginning of the Mass Education Movement, of which the health demonstration is a part. In all of Ting Hsien, a county with a population of 400,000, there was not one modern, trained physician. Work was begun in September, 1929, with one Chinese physician as the staff. By the end of June, 1930, work had begun on a health center, including a small hospital, and the staff had been increased by two clinic assistants, two nurses, a sanitary inspector and a clerk. Since that time the training of public health visiting aides, sanitary inspectors and midwives has been begun. As the chief causes of death were found to be smallpox, gastro-intestinal diseases, tetanus neonatorum and tuberculosis, it was decided to attack these specific problems, extending the work as experience and personnel warranted. Daily clinics are held by the workers, who administer both preventive and curative treatment. Investigation of water supplies proved that these were largely responsible for the dissemination of gastro-intestinal diseases; fifteen out of twenty-six wells examined contained *B. coli*. A vaccination campaign resulted in the vaccination of 21,605 persons in one month. School health work was begun in a training school for teachers and later extended to public schools, with great improvement in sanitary conditions, according to the report. In addition, lectures, special classes and campaigns for popular education are conducted.

American Academy of Ophthalmology and Otolaryngology. — The thirty-sixth annual meeting of the American Academy of Ophthalmology and Otolaryngology will be held at French Lick, Ind., September 13-19, with headquarters at the French Lick Springs Hotel. The scientific program will include papers by Drs. Edward Jackson, Denver, on "Share of Crystalline Lens in Ocular Refraction"; Cecil S. O'Brien, Iowa City, "Astigmatism—Its Accurate Determination and Correction"; Leo L. Mayer, Chicago, "An Experimental Study of Detachment of the Retina and Its Surgical Therapy"; Lyman G. Richards, Boston, "Prognostic Significance of Sinusitis in Children"; Ernest Fulton Risdon, Toronto, Canada, "Management of the Fractured Nose"; Albert N. B. Lemoine, Kansas City, Mo., "Progress in Diagnosis and Pathology in Ophthalmology"; William A. Wagner, New Orleans, "Diagnosis and Conservative Treatment of Sphenoid Suppuration," and John J. Shea, Memphis, "Nasal Obstruction and Systemic Consequences." A symposium on aviation medicine will be conducted, Tuesday evening, by Drs. Louis H. Bauer, Hempstead, N. Y., Conrad H. Berens, New York, Harry T. Smith, Humeston, Iowa, Ralph A. Fenton, Portland, Ore., and Hon. David S. Ingalls, assistant secretary of the U. S. Navy in charge of aviation. The examinations in ophthalmology and otolaryngology will be held, Saturday, September 12, in the Indianapolis City Hospital. Those interested should communicate with Dr. William H. Wilder, 122 South Michigan Boulevard, Chicago, secretary of the American Board of Ophthalmic Examinations, or Dr. William P. Wherry, 1500 Medical Arts Building, Omaha, who is secretary of the American Board of Otolaryngology. The annual golf tournament will be held Monday afternoon, September 14. Tuesday evening, a dinner will be given in honor of Dr. Luther C. Peter, Philadelphia, who is retiring from the council after thirteen years of active service as acting secretary, secretary and president.

FOREIGN

Society News. — The second International Congress of Tropical Medicine will meet in Amsterdam, Sept. 12-17, 1932. The subjects selected for discussion are avitaminoses, yellow fever, helminths and malaria. Those who wish to participate are requested to communicate with local secretaries not later than December 31. —— An international congress on biliary lithiasis will be held in Vichy, France, in September, 1932.

Dr. Aschoff Receives Microscope.—The Optical Works of E. Leitz, Wetzlar, Germany, presented their three hundred thousandth microscope to Geheimrat Professor Dr. Karl Ludwig Aschoff of Freiburg in Breisgau, Germany. It is the custom of the firm of E. Leitz to present every fifty thousandth microscope to a prominent scientist or institute. The names of the institutions and scientists who have received the microscopes are: fifty thousandth to German Tuberculosis Sanatorium in Davos, Switzerland; one hundred thousandth to Dr. Robert Koch in Berlin; one hundred and fifty thousandth to Dr. Paul Ehrlich in Frankfort; two hundred thousandth to Martin Heidenheim in Tübingen; two hundred and fifty thousandth to Institute for Tropical Hygiene in Hamburg.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Aug. 8, 1931.

Cancer Research

The eighth report of the British Empire Cancer Campaign shows important advances. The substance in tar which produces cancer has been isolated by Dr. J. W. Cook and his associates, at the Cancer Hospital, and found to be a chemically pure substance known to chemists as 1:2:5:6-dibenzanthracene. This is an advance of the first magnitude toward knowledge of the causation of cancer. Experiments are progressing to find a method of freeing lubricating oils from the cancer-producing substance. This would prevent such conditions as mule spinners' cancer. Perhaps the most important result is the production by Dr. T. W. Lumsden at the Cancer Research Laboratory of the London Hospital of an antiserum. Sheep injected with human cancer cells do not acquire the disease but produce anticancer substances. When their blood is added to cultures of mouse cancer cells, these die within a few minutes, while normal cells are unaffected. Hence the possibility of an antiserum which may cure and then immunize the living subject. It was found that if the antiserum could be confined to the malignant growth in a mouse, the growth died and the animal recovered. But this was possible only in superficial growths. In the case of internal growths it was found impossible to inject the antiserum into the general circulation without killing the animal. But acting on a suggestion of Sir Charles Martin, Dr. Lumsden and his assistant Dr. Campbell Smith have been able to separate the anti-cancer element and produce a comparatively nonpoisonous substance ten times stronger than the original antiserum. With this they have cured and immunized mice suffering not only from artificially implanted cancers but also from spontaneous cancers by injecting the antibody into the general circulation. These results have never been obtained before and, although not yet established as constant, open up horizons that seemed impossible. Following up the work of Professor Warburg on the peculiar metabolism of cancer cells, it has been shown at the Middlesex Hospital by Drs. Dickens and Simer that a defective power to oxidize sugars is a regular characteristic of malignant growth tissue. Professor Mellanby has shown that phosphate plays no part in cancer glycolysis. As regards the relation of diet to cancer, foods rich in vitamins were found to stimulate cancer no less definitely than normal cells, and they did not prevent tumors from developing when an effective carcinogenic stimulus was present. Cancer is therefore not a deficiency disease.

RADIUM TREATMENT

Data from various hospitals show that in cancer of the throat, tongue, face and lips radium has proved the most useful. At the Westminster Hospital a survival rate of 11 per cent is recorded after five years for inoperable cancer of the tongue; of 18 per cent after four years, and of 26 per cent after three years. The conclusion is drawn that in expert hands radium has achieved more than any other measure.

THE DANGER OF THE RADIUM "BOMB"

Caution is expressed as regards the radium "bomb." This 4-gram apparatus, the only one in this country, has proved to be dangerous, producing rapid diminution of the blood cells after from twenty-five to thirty hours' treatment. A small decrease in the red cells is produced, but the total white cell count falls from 7,000 to 3,000 or less, the lymphocytes being particularly affected. On the other hand, small exposures over a long period cause a definite increase in the white cell count. The damage was not irreparable: a period of rest was followed by a return to normal. Treatment for one week impaired the urea concentration power and it seemed that in some cases kidney damage had been done in the form of glomerular hypertrophy with edema and necrosis of the loops of Henle with shedding of tubular epithelium. An unexpected finding was that adenocarcinoma of the uterus responded as well as squamous cell carcinoma. In cancer of the cervix, when the parametria were involved, supplementary external irradiation, especially when there was fixation, was found to increase materially the number of five year cures.

Bill for Sterilization of Mental Defectives Rejected

A bill was introduced in the house of commons to allow sterilization of mental defectives on their own application or that of their parents or guardians. The defective must not be under the age of 16 and the consent must be obtained of (1) the defective, if he is capable of such, (2) the spouse (if any); (3) if unmarried, his parent or guardian; and (4) the board of control. A sterilizing operation is defined as vasectomy, salpingectomy and any other operation by which the patient is rendered incapable of procreation without the sexual function being otherwise impaired. An extraordinary attack was made on the bill by Dr. Morgan, a physician and labor member, who described it as anti-working class legislation and attributed low-grade defectives to poverty, for which of course according to socialistic doctrine the community is responsible. His remedy was segregation and "socialization." Leave to introduce the bill was refused by a majority of 167 to 89.

The Davis Escape Apparatus for Submarine Disasters

The story of the escape of petty officer Willis and his companions from the disaster to the submarine *Poscidon* by means of the Davis apparatus has sent a thrill through the country. This is the first case of the successful use of the apparatus, which consists of a bag strapped to the chest and containing oxygen, which is inhaled through a mouthpiece. Men are taught to use it under conditions that approximate as nearly as possible those of a submarine disaster. In a tank 15 feet high and 15 feet in diameter is placed the conning tower hatch and the engine-room hatch taken from a submarine. This is filled with water. Built on the side of the tank is a replica of a compartment of a submarine. This is dry when the men under instruction enter it. They are taught there how to adjust the Davis dress correctly. Water is then admitted and as it rises they are shown how to place themselves in the air lock, breathe their oxygen supply, open the conning tower hatch when the air pressure is equalized, and escape through the hatch. As they emerge from the conning tower as far as their hips they bring their hands down to their sides and shoot to the surface at a speed of 5 feet per second. When they reach the surface the escape dress acts as a lifebuoy, and if a man becomes unconscious it holds his head in such a position that he does not drown. The dress can be put on in nine seconds and a man wearing it can live under water from one and a half to two hours. All men in the submarine service will go through this course of instruction, which is giving satisfactory results.

Courses for Ship Surgeons

In consequence of the recommendation of a special committee of representatives of the shipping companies, the ministry of health, the London School of Hygiene and Tropical Medicine, the Seamen's Hospital Society and the British Medical Association, a postgraduate course for ship surgeons has been formulated and lectures and demonstrations have begun at the Seamen's Hospital, Greenwich. The object is to enable ship surgeons to refresh their knowledge and to give instruction to candidates for these posts in ships' hygiene, board of trade requirements, and clinical subjects in their special applications to conditions on board ship. The course is divided into three parts: (1) ships' hygiene, the shippings acts quarantine procedure; (2) tropical medicine and hygiene; (3) clinical. The second part will be held at the London School of Tropical Medicine and the Hospital for Tropical Diseases.

PARIS

(From Our Regular Correspondent)

July 22, 1931.

The Congress of Otoneuro-Ophthalmology

The fifth Congrès d'oto-neuro-ophtalmologie was held in Paris, during the last week of June, under the presidency of Professor Velten. This group of specialists in somewhat different fields devoted themselves chiefly to the study of nervous disorders that are the sequels of epidemic encephalitis. The congress was attended by a large number of French and foreign physicians. Three papers were presented, one by Prof. G. Portmann of Bordeaux on "The Late Cochleovestibular Manifestations of Epidemic Encephalitis"; a second by Riser and Mériel on "The Neurologic Sequels of Epidemic Encephalitis," and the third by Teulières and Beauvieux on "The Late Ocular Manifestations of Epidemic Encephalitis." Many further communications were presented by Collet of Lyons on "Pharyngeal Disorders in a Case of Parkinsonism Following Encephalitis"; Rebattu, Devic and Mounier-Kuhn on "Pharyngolaryngeal Manifestations in Epidemic Encephalitis"; Terracol of Montpellier on "Neurolaryngeal Sequels of Epidemic Encephalitis"; Ferreri of Rome on "Acouometric Research on the Sequels of Epidemic Encephalitis"; G. N. T. Borries of Copenhagen on "Otogenic Nonepidemic Encephalitis"; Barré of Strasbourg on "Vestibular Reactions of Patients with Parkinson's Disease"; Draganesco and Kreindler of Bucharest on "Functional Condition of the Cerebellolabyrinthine Apparatus in the Spasm of Torsion Following Encephalitis"; Froment and Colrat of Lyons on "Ocular Determinations in Epidemic Encephalitis"; J. Rollet and Bujadoux of Lyons on "A Case of Paralysis of the Third Nerve During Epidemic Encephalitis; Study on the Mode of Retrogression"; Paulian of Bucharest on "Clinical Nature of Postencephalitic Ocular Spasms," and Pavia of Buenos Aires on "Ocular Changes in Suprasellar Tumors."

Vital Statistics for France

The general bureau of statistics has published the vital statistics for the population of France for the first three months of 1931. In comparison with the corresponding quarter of 1930, these show an unfavorable condition:

	1930	1931
Marriages	72,330	63,024
Divorces	4,470	4,517
Births (living children)	189,872	190,809
Stillbirths	7,171	7,272
Deaths of infants (under 1 year)	15,319	18,485
Deaths (over 1 year)	163,714	207,003
Total deaths	179,033	225,488

The excess of deaths over births is 34,679, whereas last year there was an excess of births over deaths, for the corresponding period, of 10,839. There was no epidemic that might explain the difference between the two years. The number of births is almost stationary but the increase in the number of deaths is alarming. The mortality of the first year of life was increased by about one sixth. But for persons above 1 year of age there was an increase of 43,289 deaths. Nevertheless, there has never been a year in which so much attention has been paid to the development of hygiene; and to the creation of hospitals, sanatoriums and dispensaries. The causes of these deaths will not be reported until two years later, for statistics on the causes of death involve considerable work. The situation, however, justifies anxiety.

Medullary Changes Following Diving Accidents

It frequently happens that, in diving into shallow water, divers traumatize the cranium and the cervical vertebrae, resulting in cerebral or medullary lesions, chiefly through hematomyelia. Professor Guillain presented before the Academy of Medicine a special study on these cases. In nearly all cases of paralysis in divers, there is a fracture of one or more of the last three cervical vertebrae. It is at this level of the convexity of the spine, exaggerated by the bent position of the head, that the two opposing forces meet, one being created by the body in motion and the other by the resistance of the object struck. The predominant medullary lesions are hematomyelias of the cervical region. Three clinical forms may be distinguished. The grave form is characterized by a sensory-motor paralysis of the muscles of the lower limbs, the abdomen, the thorax and the upper limbs. The tendon reflexes are abolished; the skin reflexes are preserved; there are sphincter disturbances; often one observes a Claude Bernard-Hörner syndrome. Lumbar puncture reveals a hemorrhagic or xanthochromic fluid. The temperature is high. Death ensues in a few days or weeks. In the second clinical type the patient survives; but there persist late signs of hematomyelia: amyotrophic paralysis of the upper limbs, spasmodic paraplegia, disorders of sensation of the type of syringomyelic dissociation. In the less severe injuries one observes transient paretic disorders due no doubt to simple medullary shock.

Use of Inflammable Fluids in Barber Shops

Following repeated accidents, the opinion of the Academy of Medicine was sought by the minister of public health before proclaiming, as a sanitary measure, the interdiction of highly volatile and inflammable fluids employed by barbers to remove any excess of oil from the hair, and which, in addition to their inflammability, present dangers for the personnel that handles them in confined places. After hearing the report of a committee appointed to study the question, the academy adopted the conclusions of the report. The use of carbon tetrachloride was strictly regulated by an ordinance passed in 1916; but the precautions prescribed have not been followed and it would be better to prohibit its use entirely, as well as all mixtures that contain it. Consequently the academy has transmitted to the minister a copy of the resolution to the effect that "The preparation, keeping in stock, sale or use of any fluid or mixture of fluids that is inflammable or toxic, destined as a hair wash, shall be prohibited throughout the French republic."

The Fourth Centenary of the Collège de France

The Collège de France, whose foundation dates back to Francis I and to the year 1531, celebrated recently its four hundredth anniversary with fitting ceremonies. In the Great Hall of the Sorbonne, in the presence of the president of the republic, many official foreign delegates presented their felicitations in the presence of a large gathering, which included all the scientific and literary notables of Paris. The ceremonies extended over a period of four days, during which a number of addresses were delivered. The address devoted to the work of Claude Bernard, who was one of the great personages of the Collège de France, furnished Professor Vincent the necessary material for an impressive study on the birth of physiology under the influence of that eminent savant.

The Medical Records of Deceased Physicians

The French medical societies have been solicited by a circular letter of Professor Tandler of Vienna to investigate and to report to the press the interest that the public has in the disposal of the medical records of deceased physicians, with a view to preserving the right of privileged communications. Most physicians preserve in their office the record-cards setting forth the pathologic peculiarities of their patients. The record-cards of hospitals are preserved in archives. The record-cards of a private clientele may, after the death of a physician, if he has no successors, find their way into the hands of the public through the sale of his furniture, or they may come into the possession of a servant. The servant, or any one purchasing a filing case, may thus threaten to make known, for example, that a certain person, well known in politics or society, has been treated for syphilis, morphine addiction, kleptomania or sexual

anomalies. To prevent such consequences, Professor Tandler suggests that, on the death of a physician, his record-cards and other records of observations on his patients be immediately placed under seal and transmitted within a reasonable time to the headquarters of a medical association, where they cannot be consulted without an official permit, and then, after the lapse of ten years, that they be entirely destroyed. The patients would thus be assured that the secrets that they confided to their physician cannot fall, at the death of the physician, into the hands of unauthorized persons. This question of the disposition of the record-cards of a physician after his death deserves to be given consideration in the medical journals of all countries, and it is surprising that there has not been some discussion on the subject at some of the professional assemblies.

MADRID

(From Our Regular Correspondent)

July 30, 1931.

The Work of Spanish Physicians in the Birth of the Republic

The Spanish medical profession and medical students have been the most interested and active among the Spanish social classes in the change of government to a republic, especially during the last three years. During the period in which Primo de Rivera was premier, the medical students several times called strikes and made hostile demonstrations against the government, some of which assumed a tragic aspect as previously reported (THE JOURNAL, May 3, p. 1423, June 28, p. 2081, 1930). The place of one of the demonstrations was the faculty of medicine of Madrid and during the riot the soldiers of the government fired on the hospital. The pupils and most of the teachers protested against the attitude of the forces. Drs. Suñer and Enriquez de Salamanac, whose points of view differed from those of the entire group, were deprived by the other teachers of giving their opinions and the new government gave them a leave of absence for the present semester. One reason why the students complained against the faculty was the following: They claim that, whenever a given course is temporarily discontinued because of political affairs, the teachers should give them their credits for the course since they were forced by circumstances to be absent. At the opening of schools under the new government the students presented to the faculties their claims in a form more or less imperative. In Valladolid, while the faculty held a meeting to discuss the matter, the students locked them up for some hours in the assembly-hall. The pupils came to order only when the teachers promised to recognize their credits. During the last three years the continued excitation of the whole country was reflected in university youth. The condition should not remain so longer because it will lower the standards of the intellectual groups, especially the medical profession.

Spanish physicians were for a long time open enemies of a monarchy, though personally they were friendly to the royal family in its reverses. For instance, Dr. Pitaluga, who was head physician to the crown prince, was one of the chiefs of the republican outposts. Dr. S. Pascual, who during the monarchy was put in jail charged with attacks against the dictatorship, was later appointed the head physician to the crown prince and in spite of his republican ideals he stood at the side of his patient until the prince left Spain. Dr. Marañón played an important part in the negotiations between the republicans and the monarchists. The respect for the royal family which the republican members imposed on the masses of the people so that they could cross Spain and go to France without hostile demonstrations should be emphasized. Dr. Marañón was appointed an ambassador from Spain to Paris, but he declined the honor and preferred to continue medical practice. However, he was prevailed on to accept the chair of endocrinology in the Faculty of Medicine of Madrid by the minister of public instruction. Dr. Florestán was the delegate of the republic to transmit to the king the dispositions of republicans by which he would no more rule in Spain. It is said that, the royal family being short of money at that moment, Dr. Florestán gave them the necessary money for their expenses.

Physicians as Members of Parliament

Forty-seven physicians have been appointed as representatives of several provinces to parliament. While there is criticism in some newspapers, which believe that lawyers rather than physicians should be active in politics, the general feeling is that the people as a whole will derive great benefit from the intervention of the medical profession in public affairs.

Relation of Syphilis and Cancer

Dr. J. Goyanes, director of the Instituto Nacional del Cancer of Madrid gave a lecture in which he stated that, while studies made on syphilis have made great progress, the cancer problem is far from being solved. Certain lesions which may have a syphilitic origin, such as leukoplakia, seem to indicate that there is an objective relationship between syphilis and cancer. A relation between syphilis and cancer would be manifested if it were possible to demonstrate that syphilitic lesions could undergo a degeneration to cancer. Syphilitic and cancerous characteristics, however, rarely coincide in the same lesion. Microscopic studies made at the Instituto del Cancer of Madrid in 4,000 cases of cancer did not prove the existence of the two diseases in the same lesion. Several Spanish anatomopathologists, whom Dr. Goyanes questioned, have never observed the two diseases simultaneously in the same lesions. Syphilitic lesions disappear rapidly after their appearance and when located in deep viscera they do not cause cancerous degeneration. Syphilis by itself is not the determining factor that causes degeneration of cells into blastoma. The influence that syphilis has in the development of cancer may be indirect, either by favoring the development of nonsyphilitic lesions, such as leukoplakia and certain scars, or by predisposing the organism to a blastomatic degeneration. Persons without syphilis may present leukoplakia and, when the disease appears in syphilitic patients, other irritative factors, such as alcohol, chronic inflammation of the mouth, or the irritation of some foreign bodies in contact with the buccal mucosae, should be taken into consideration and the malign neoplasic degeneration of the leukoplakia lesion may be regarded as a general reaction from the cells to the irritative causes rather than as a process following the specific action of given bacteria.

Dr. Goyanes collected statistics regarding 685 men and 32 women with cancer of the buccal cavity. The results seem to show that there is a certain influence of syphilis on cancer in this region. Cancer of the buccal cavity is more frequent in men than in women (95 and 5 per cent, respectively, in the author's case). Probably some other factors, such as tobacco, alcohol and certain predispositions of the sex, may be responsible for the increased frequency of cancer of the mouth in men. The same observation was made with regard to cancer of the larynx. Leukoplakia may develop under influences other than syphilitic, but even when the disease develops in syphilitic patients it does not represent a syphilitic lesion but a parasyphilitic one. Syphilis has a marked importance in the production of parasyphilitic lesions but it cannot be proved that there exists a direct relation between strictly syphilitic lesions and the epitheliomatous degeneration of the tissues. May syphilis as an infection be considered to cause a predisposition to cancer? Statistics seem to indicate that syphilis as an infection has a precise influence for the predisposition to cancer. Any campaign against alcoholism, nicotinism and other of the modern habits will indirectly represent a crusade against cancer.

Consumption of Milk in Spain

Dr. Gomez Aguado presented a paper before the Sociedad Española de Higiene for which a prize was given to him by the ministry of the state. The author says that the consumption

of milk has increased remarkably in Spain during the last few years. The population used to drink such a small amount of milk thirty or forty years ago that it could be said that they drank only the milk prescribed by physicians. At present, the annual consumption of milk is 800 million liters, representing 100 cc. daily for each person. While comparing the consumption of milk in Spain with that in other countries, the author found out that it is above that of Italy (46 cc. daily per person). It is, however, below that of France, Germany, Denmark and Switzerland (200, 194, 370 and 580 cc. daily, respectively, per person). It seems advisable both for the good health of the Spanish population and for the increase of the wealth of dairy products of the country that the use of milk be increased. Spain at present imports about $1,400,000 worth of milk products and about 200 tons a year in dry milk from foreign countries.

Funds for the Crusade Against Cancer

Mr. J. Compte y Viladomar made a donation of 500,000 pesetas ($50,000) to the Junta de la Lucha contra el Cancer of Barcelona with the purpose of providing radium to meet the necessities for the treatment of cancer in Barcelona. Mr. Compte y Viladomar made a similar donation to the Hospital Clinico about a year ago. The cruz de Beneficencia was given to him on that occasion as a token of appreciation.

BERLIN

(From Our Regular Correspondent)

June 20, 1931.

Congress of Otology, Rhinology and Laryngology

The Congress of Otology, Rhinology and Laryngology was held in Leipzig, May 21-23. As other medical specialties, laryngology, rhinology and otology have derived profit from the teachings of the pathology of the constitution and the science of heredity. Therefore "The Pathology of Heredity and Constitution as Pertaining to the Ear and the Upper Respiratory Tracts" was selected as a subject for discussion at this session. Siemens of Leyden, author of a book on the pathology of twins, introduced the subject by considerations of a more general nature, while Albrecht of Tübingen gave a more detailed discussion. Accordingly, Siemens considered the fundamental problems of the modern theory of heredity. The principal thing in research on the influences of heredity is not an intimate knowledge of complicated methods of computation; the most important thing for the student of the pathology of heredity is that he shall be an experienced and reliable clinician.

Siemens demands that the notion of constitution be separated from its mythological aspects. Hitherto, in applying the term "constitutional," it was a question of establishing the connections of diseases *inter se* or with so-called normal qualities. The theory of constitution must take on the nature of a theory of correlations that works with "solid, statistical material." By the use of statistical methods one must, for example, discover how often, and under what conditions, in fragility of the bones, otosclerosis develops; how often mental disorders and weakmindedness are found associated with certain definite anomalies of the external ear; what the probabilities are that children with a hyperplastic pharyngeal ring of lymphoid tissue will later suffer from catarrh of the pharynx and from otitis media. Siemens opposed certain exaggerations of the pathology of the constitution, based on inadequate statistical material, which find a crass expression in the statement of Joux: "Show me your ear, and I will tell you who you are, your origin and your final destiny."

The second speaker, Professor Albrecht, ascribed great importance to research on twins, genealogical trees and the sibling method. In exact research on constitution, Albrecht demands that first the question be considered, in connection with disturbances, as to what is traceable to the hereditary predisposition and what is acquired, and as to how this or that natural aptitude reacts to the influences of the external world. A remarkable feature of Albrecht's paper was, that he regards, in addition to clinical observation, histologic anatomy and pathology as the most important part of research on the constitution. There are in the quality of the supporting tissues essential constitutional differences. The form and figure of the individual are greatly influenced by the quality of the supporting tissues. Albrecht showed in detail what part constituonal forces and what part local conditions play in inflammatory processes of the ear and of the respiratory passages—what importance, for example, attaches to the histologic structure of the mucous membrane and to its cellular energy in determining the course of an otitis media. Research on the constitution has failed to clear up the obscurity that hovers over the pathogenesis of two disorders that Albrecht terms the "children of sorrow" of otology, rhinology and laryngology — otosclerosis and ozena. That otosclerosis has its final cause in a hereditary predisposition is generally recognized; but wherein the hereditary predisposition consists, and whether external influences are necessary for the genesis of otosclerosis, are questions in regard to which there is as yet no common agreement. It is well known that ozena is common in certain families; but whether the disorder is the result of a specific infection (possibly supported by a hereditary predisposition) or whether it is due to a defective functioning of the mucous glands, to an avitaminosis or to other factors is not settled.

Further communications discussed the significance of constitution and hereditary predisposition for the pathology of the ear, particularly as to what part the constitution plays in the genesis of the various types of mucous membrane in the middle ear or in the defective or absent cell formation in the mastoid process, and what significance attaches to the influences of the external world, especially otitis in infants.

A large number of communications dealt with topics other than the one on the official program.

This session had also its communications on sepsis following sore throat. Attention cannot be called too frequently to this dire complication, to the need of early diagnosis, and to the indications for operative intervention. H. Claus of Berlin, who has published his experiences in the observation of a hundred cases, called attention again to the diagnostic importance of increased sensitiveness on pressure in the region of the angle of the jaws; to the necessity in all cases in which tonsil symptoms persist to make a blood analysis, in order to prevent confounding the condition with agranulocytosis, leukemia or monocytic angina. Clausen resorts to tonsillectomy in these cases only when in the fifth posterior facial nerve no phlegmonous path leads to the tonsillar floor. This is done to prevent the forming of any communication between the oral cavity and the throat lesion.

The Robert Koch Celebration

March 24, 1932, will be the fiftieth anniversary of the discovery by Robert Koch of the tubercle bacillus. The federal minister of the interior and the minister of the Prussian department of welfare have taken the initial steps to inaugurate suitable ceremonies in commemoration of the event. From May 17 to May 20, 1932, a commemorative assembly will be held in Berlin. On May 18 there will be a special commemorative session, in which German and foreign scientists will participate, and on May 19 and May 20 further scientific sessions will be held. It is planned also to reorganize under the name of the Robert Koch-Gedächtnis-Stiftung the Robert Koch foundation that was disorganized during the inflation period, and, above all, the importance of Koch as a scientist will be brought before the people in a suitable manner. Reichspräsident v. Hindenburg has consented to serve as the patron of the undertaking, and the imperial chancellor will be the honorary chairman of the committee on arrangements. In addition, a committee to aid in the organization of the scientific assembly will be appointed, to consist of German and foreign scientists and investigators.

RIO DE JANEIRO

(From Our Regular Correspondent)

Aug. 15, 1931.

Latent Leprosy

Dr. J. M. Gomes, who recently lectured before the Sociedade de Biologia of São Paulo, stated that persons, especially children, who live in contact with lepers become infected by the leprosy bacillus, which lodges in the deepest tissues, thus causing a form of latent leprosy. The separation of these persons from infected foci, the earlier the better, results in the diminution of the virulence of the bacillus until its complete disappearance in some cases in which leprosy never develops. However, in another group, less fortunate than the former, the virulence of the bacillus increases and the latent disease sooner or latter makes its appearance either in a masked or in a manifest form. In all cases in which a deviation of the complement took place, the author had observed some years previously certain manifestations which indicated the presence of *B. leprae*, in the nasal mucus, in the lymphatic nodes or in the nerves. The latency of leprosy was clinically shown in these cases by the appearance of symptoms of pain. The treatment with chaulmoogra oil preparations as a prophylactic in persons who had been in contact with lepers in whom a latent leprosy may be suspected has given good results in the author's cases. One of the persons observed, who had already acquired the disease, when separated from the infected foci was cured after having received the treatment.

The best results derived from the treatment are obtained in those persons who are separated from the infected foci. It is advisable to make as a routine the test of the deviation of complement on those persons, especially after activating the blood serum by giving them some potassium iodide preparation in a dose of 2 Gm. daily during a week before the test is applied. The isolation of bacillipherous lepers should be compulsory.

Etiology of Beriberi in Bahia

Dr. Eduardo de Araujo, director of the Instituto Oswaldo Cruz of Bahia, reviews the theories on the etiology of beriberi and shows that a vitamin B deficiency, which has been considered to be the most important etiologic factor, cannot be related with the disease in Bahia, Brazil. Beriberi occurs in an epidemic form from time to time among prisoners in the state jail and inmates of insane asylums, whose diets are different from those given to the inmates of similar institutions in Eastern countries and which contain abundant provision of vitamin B. It is believed that contagion, rather than a vitamin B deficiency, is the cause of the epidemics in Bahia. Inmates admitted during epidemics or in periods just preceding them have shown a sudden attack of beriberi shortly after their admittance to the institution. Sometimes while beriberi is prevalent in the institution, attacks of the disease are observed among members of the guard who are not on the same diet as that of the inmates. The author tried to make clear the facts recently published by Matsumura and his co-workers, who believe that a certain type of *Escherichia, Bacillus beribericus*, causes human beriberi as well as polyneuritis columbarum. The results obtained by the author in three groups of persons belonging to the institutions, in agglutination tests made for *B. beribericus*, were as follows: The first group comprised patients with beriberi at different stages of the disease. One hundred and sixty samples of blood from this group were tested, 55 per cent of which gave positive results (50 per cent were positive for the type A and 5 per cent for the type B of the bacillus). The second group comprised a few patients with a doubtful history of beriberi. Eighty per cent of the samples of blood in this group gave positive results for an agglutinating strain of the human B type. The third group was made up mostly of inmates who did not seem to have the disease and who were living under the same conditions as those of beriberi patients and in contact with the latter. Eighty-two per cent of the samples of blood in this group gave positive results for agglutination to the B type. The examination of feces from these three groups of patients gave positive results in 39 per cent of the fecal samples belonging to patients of the first group, in 25 per cent samples of the second group, and in 11 per cent in samples from the third group of patients. Several times, bacilli were isolated from feces of both patients and healthy persons living under the same conditions previously manifested. In the agglutination tests made in these groups the serum dilutions were low, which makes the specificity of the test doubtful. The strains isolated from feces when tried against immune serums of high power for homologous Japanese strains showed agglutination in relatively low dilutions of the serums. Notwithstanding, the fermentation reactions in several mediums agreed closely with those of the original Japanese strains. Methyl red, indole and Voges-Proskauer tests also were made. In short, it appears that the type of *Bacillus beribericus* described by Matsumura and his collaborators in 1929 should not be considered as the etiologic factor in the beriberi observed in Bahia. The results of the author's experiments, though dissimilar to those obtained by the Japanese workers, do not disprove the observations made in Japan as applied to that country. The author's results in experiments made on pigeons on a diet of polished rice also were different from those obtained by the Japanese workers. *B. beribericus* (A and B types) isolated in Japan from pigeons suffering on account of vitamin B deficiency did not show any precise relation to the disease in the experiments made in Bahia. The author concludes that it cannot be stated that *B. beribericus* is the specific cause of beriberi in Bahia.

JAPAN

(From Our Regular Correspondent)

July 15, 1931.

Medical Affairs in Connection with China

An investigating committee on Far Eastern drugs will be established as proposed by Dr. Rajchman of the League of Nations, who visited China and Japan some time ago. It will consist of the medical authorities from China and Japan, and the center is to be established in Shanghai with the express agreement of the Japanese government. Although the expenses will partly be paid by the league, the rest are to be borne by both countries. Drs. Morishima, emeritus professor in the Kyoto Imperial University, Kubota, professor of pharmaceutics in the Manchuria Medical College, and some other men are supposed to be nominated for the commission of our country.

The building of the Shanghai Institute of Natural Philosophy has been completed, and the director will be Dr. C. Yokote, former professor in the Tokyo Imperial University. The new director went to Shanghai in April, accompanied by his Japanese staff.

According to an exchange scholarship agreement between China and Japan, Dr. S. Ono, professor of pathology in the South Manchurian Medical College, has been dispatched to Peiping to lecture in the Peiping Union Medical College.

The general session of the Chinese Medical and Pharmaceutical Association was held in Shanghai, April 3-6; the Japan delegates were Drs. Miyake and Kondo, professors in the Tokyo Imperial University, and four others.

Twenty-five Chinese medical students of the Chinang University have come to Tokyo and will stay till the end of this month. They are lodging at the Chinese Y. M. C. A. in Tokyo and are visiting medical colleges and hospitals in Tokyo and its vicinity.

Antituberculosis Day

According to statistics prepared by the home ministry, the number of deaths from tuberculosis was 88,440 during 1927, or 14.05 per 10,000 of population. The number of tuberculosis cases treated by the hospitals of the Japan Red Cross Society is reported to have amounted to 1,682 inpatients during 1930,

217 of whom were old patients, while the remaining 1,465 were new ones. Of the cases, 142 became arrested, 332 patients got better, and 346 patients died. The home ministry sent a circular to every local governor that the number of cases should be investigated on antituberculosis day, which was to be held throughout the country, April 27.

The Antituberculosis Campaign

The Japan White Cross, the antituberculosis society in this country, which held a memorial meeting on its twentieth anniversary in Tokyo, April 2, is now raising funds for a memorial. The plans are as follows:

The enlargement of the camp school for weak children, which was established on the coast of Kamakura in 1917. The expenditure of 30,000 yen is needed for the new establishment.

The enlargement of the consultation office for the early diagnosis of tuberculosis at Kanda, Tokyo, with the total expenditure of 20,000 yen.

The establishment of a sanatorium at Murayama village in the neighborhood of Tokyo, with the expenditure of 50,000 yen.

An Epidemic in the Okinawa Islands

A queer epidemic called "Tengu Disease" is reported to be prevailing in the island of Okinawa (the Loochoo Islands). It began in July and the number of the cases now has amounted to 30,000. It seems still to be spreading. The primary schools and town and village offices are compelled to be closed for a time. The home ministry has dispatched Dr. Hosoya of the government institute for infectious diseases, and the Saisei-kai Charity Society is going to send four physicians.

Statue of Dr. Yayoi Yashioka

The unveiling of the bronze statue of Dr. Yayoi Yashioka, dean of the Tokyo Women Medical College, was attended by more than 500 people. An address was made by Dr. Takeuchi, one of the oldest graduates of the college; the statue standing in the grounds of the hospital was unveiled by Dr. S. Yashioka, son of the dean. Mr. Hayashi, president of the Keio University, gave an address.

Health of the Children in Tokyo

According to the results of the physical examination performed by the school physicians in Tokyo last year, among 203,097 primary school children 23,388 (23.02 per cent) were in need of medical observation, which was a decrease of 0.16 per cent in comparison with that of the year before (1929). The number of children with carious teeth amounted to 182,175 (more than 17.9 per cent).

Medical Students Abroad

Dr. Shinagawa, chief gynecologist in the Kagawa Branch Hospital of the Red Cross, was dispatched to Europe toward the end of February. Dr. Sawai, vice director and chief surgeon of the Fukui Branch Hospital of the Red Cross, also was sent to Berlin, and left here toward the end of April.

May 9, the educational ministry appointed Dr. O. Shimamura, assistant professor in the Niigata Imperial Medical College, and Dr. Hojo, assistant professor in the Nagasaki Imperial Medical College, to go abroad to pursue their studies. Also nine students from every medical college or from the medical department of the university were selected to go to Germany for two years with the exception of one, who will study in England for a year.

Personal Items

Dr. I. Takagi, member of the government institute for infectious diseases, at the request of the department of foreign affairs left for Brazil in April to investigate the health conditions of the inhabitants.

Dr. Yasunaga, former vice director of the Fukagawa Municipal Hospital in Tokyo, also left for Brazil as health adviser to immigrants from Japan, and will stay there about two years.

Under the auspices of the Japan Pathologic Society, the sixty-first birthday of Dr. Fujinami, professor in the Kyoto Imperial University, was celebrated in the Miyako Hotel in Kyoto; as the general meeting of the Japan Medical Association was being held, more than 700 people attended.

Dr. N. Sugita was named to take the place of Dr. Kitazawa in the Aichi Medical College, which is now under the management of the government. Dr. Sugita was the vice director of the Matsuzawa Lunatic Asylum of Tokyo.

Prof. Dr. Seo, director of the hospital attached to the Chiba Imperial Medical College, was succeeded by Prof. Dr. Sasa in the same college.

Dr. Iwata, who lives near Tokyo, has been elected a member of the house of peers. There are now nine physician members in the house.

Dr. S. Kuga, health expert in the sanitary bureau of the home ministry, died at Tokyo, aged 64.

Dr. M. Takayama, professor of forensic medicine in the Kyushu Imperial University, and Dr. H. Nakayama, professor of pathology in the same university, have reached their age limit and have retired.

NETHERLANDS

(From Our Regular Correspondent)

July 20, 1931.

Sources of Drinking Water

According to the latest statistics, 4,700,000 inhabitants out of a total population of 7,700,000, or 61 per cent, derive their drinking water from a water system. Of these 444 communes, 142 secure their water from dunes, 25 from subterranean water drawn from dunes, and 49 from river water. Some communes, such as Amsterdam and Groningen, utilize partly river water and partly subterranean water. In 1929 there were 149 water systems, 109 of which are exploited by public administrations and 39 by private companies. From a report recently published on this important question by Messieurs Liefrinck and Krul, certain points of general interest have been taken. The public health law of June 21, 1901, placed all questions concerning the hygiene of water, soil and air under the control of inspectors of public hygiene and created at Utrecht a central laboratory of public hygiene charged with annual chemical and bacteriologic examinations of the crude and the purified water of all the water systems of the country. In 1913 the government bureau to deal with problems pertaining to drinking water was created. It is the duty of this bureau to advise the government on all questions concerning the procuring of water supplies, such as the allocation of subsidies, the examination of proposed water systems in relation to the demands for subsidies, the elaboration of projects, the control of construction and of the exploitation of subsidized water systems, and the preparation of legislative measures. In order to encourage the creation of new water systems (especially in the rural sections), the government pays part of the expense of surveys and the elaboration of projects, furnishes the communes with the necessary capital for establishing the system, participates in the payment of the interest due from the communes, assumes part of the risk of exploitation, guarantees the payment of interest, and makes good, if necessary, the deficits in the form of advanced benefits.

The New Physiologic Laboratory at Utrecht

The new physiologic laboratory at Utrecht, which was erected chiefly with funds supplied by the Rockefeller Foundation, was opened recently. The auditorium seats 219 students. The laboratory proper has, among others, rooms for experiments on sound, an installation of radiographic equipment, a room for the physiology of the organs of sense, and a room for the study of nutritional metabolism. The elevator does double duty, serving, by means of its special construction, not only for

transportation purposes but also as an instrument to illustrate the laws of gravity. Physiology in the Netherlands, as Prof. A. K. M. Noyons, the director of the laboratory, has pointed out, has suffered serious embarrassment owing to the lack of competent assistants. The new equipment appears to justify the hope that physiology as a science will take on a greater development.

Deaths from Childbirth

Dr. D. G. Wesselink, medical director of the training school for midwives in Rotterdam, has been investigating the subject of mortality resulting from childbirth. According to official statistics of various countries, the Netherlands has one of the lowest percentages of deaths due to childbirth. Since the period 1916-1920, however, the statistics have shown an increasing percentage of such deaths. One may admit that the increase in the number of deaths indicated by the official statistics is correct. While several factors are responsible for the increase, there is no reason to assume that there has been any falling off in the quality of the medical care.

The Crossing of Races in Java

In recent years much attention has been given to the study of the problem of the crossing of races in connection with researches on anthropology. Dr. E. Fischer has published the results of his studies on the Rehobother half-breeds of southern Africa, which have resulted from a crossing of the native men with Hottentot women. Radenwaldt has likewise made studies on the offspring resulting from crossings of Europeans and Javanese. The children have a peculiar color of the skin, the eyes and the hair, and a special form of the nose. As to the eyes, the brown dominates over the blue. Roest has made a study on forty families of European soldiers who married Javanese women, and points out the characteristics that the children have inherited from one or the other of the parents. As regards the color of the eyes, the form of the nose, and the cephalic and facial indexes, it seems that the children take more after the mother.

Crusade Against Malaria in North Holland

The malaria commission, which has been carrying on a crusade in the province of North Holland, has been aided to a great extent by the donation of equipment and funds. In the main, the physicians have cooperated well in the undertaking; but inquiries have shown that some physicians have not reported regularly the results of blood analyses. The blood analysis is, however, the formal basis for the establishing of statistics. In 1929, 1,430 families affected with malaria were reported in North Holland. There were 1,446 families in 1928 and 1,390 families in 1927. The demonstrators of the crusade visited a large number of houses and carried out numerous demonstrations with insecticidal methods.

International Congress for the Aid of the Infirm

The second International Congress for the Aid of the Infirm (the first congress having been held at Geneva in 1929) was held at the Hague from June 28 to July 3. Organized by the International Society for the Care of Crippled Children, of Detroit, Michigan, the congress was received by the Centrale Vereeniging voor lichamlijke Gebrekkingen, which has its headquarters at Arnhem, though its activities extend over the whole country, as it is the central organization for the benefit of the infirm. Mr. E. Allen, the president of the International Society, delivered an address on the subject of the supplying of aid for the infirm throughout the entire world. Dr. Corver spoke on the congress of Geneva, its lessons and its conclusions. Speakers of various countries discussed the nature of the aid given in their respective lands, the results of such aid, and the outlook. Drs. Murk Jansen and E. C. Brackett took as their subject "The Origin of Bodily Infirmities." An exhibit dealt with the manifold devices for the relief of bodily infirmities.

Marriages

GEORGE PHILLIPS REYNOLDS, Boston, to Miss Ruth Sears Cheney of South Manchester, Conn., June 6.

ARTHUR EUGENE PUTZ, Ossian, Iowa, to Miss Cordelle Niswander of Iowa City, June 18.

MIGUEL GRAUSMAN ELIAS, New York, to Miss Lucy Prince of New Rochelle, August 6.

VAUGHN H. MORRISSEY, Flint, Mich., to Miss Leona Maud Gray of Durand, June 26.

CARL M. DAVIS to Miss Leona Helen McNiece, both of Valparaiso, Ind., recently.

FRANKLIN BABBITT THEIS to Miss Una Muriel Ficke, both of New York, June 1.

ROWLAND RICHARDS, New York, to Miss Jean McLean Phillips, June 6.

EGBERT H. FELL to Miss Florence Warner, both of Chicago, June 29.

Deaths

Alfred W. Hornbogen ⊕ Marquette, Mich.; College of Physicians and Surgeons, Chicago, 1889; member of the House of Delegates of the American Medical Association, 1918-1926, 1928-1931; past president of the Michigan State Medical Society; member of the American College of Surgeons; on the staffs of the Morgan Heights Sanatorium, St. Luke's Hospital and St. Mary's Hospital; aged 65; was shot and killed, August 27, in the hospital of the state prison at Marquette by a prisoner whom he was about to examine.

Daniel Hale Williams, Chicago; Chicago Medical College, 1883; demonstrator in anatomy at his alma mater, 1885-1888; for many years professor of clinical surgery, Meharry Medical College, Nashville, Tenn.; member of the American College of Surgeons; member of the Illinois State Board of Health, 1887-1891; founded and on the staff of the Provident Hospital; surgeon in chief of the Freedmen's Hospital, Washington, D. C., 1893-1898; attending physician to the Cook County Hospital, 1903-1909; aged 73; died, August 4, in Idlewild, Mich.

Robert Caldwell ⊕ Nashville, Tenn.; Medical Department, University of Tennessee, Nashville, 1903; professor of clinical surgery, Vanderbilt University School of Medicine; president of the Tennessee State Medical Association; member of the Southern Surgical Association and the American College of Surgeons; on the staffs of the Vanderbilt Hospital and St. Thomas Hospital; aged 57; died, July 26, of coronary thrombosis.

Henry Lyle Winter ⊕ New York; Medical Department of the University of the City of New York, 1892; member of the American College of Physicians; instructor of neurology at his alma mater, 1907-1917; served during the World War; formerly president of the board of education of Cornwall; consulting neurologist to the Manhattan State Hospital and St. Luke's Hospital; aged 63; died, July 29, of heart disease.

Joseph Jay McGrory ⊕ Chicago; Bennett College of Eclectic Medicine and Surgery, Chicago, 1896; University of Illinois College of Medicine, Chicago, 1908; assistant clinical professor of surgery, Loyola University School of Medicine; senior attending surgeon to St. Anne's Hospital; aged 59; died, August 8, of myocarditis, chronic nephritis and diabetes mellitus.

Orra Miller Baxter Henderson ⊕ Ann Arbor, Mich.; University of Michigan Medical School, Ann Arbor, 1925; member of the California Medical Association and the Associated Anesthetists of the United States and Canada; formerly chief anesthetist at the Los Angeles General Hospital; aged 35; died, July 29, of chronic nephritis.

Norman Bruce Carson, St. Louis; St. Louis Medical College, 1868; professor emeritus of surgery, Washington University School of Medicine; member of the Missouri State Medical Association, American Surgical Association and the American College of Surgeons; on the staff of St. Louis Mullanphy Hospital; aged 86; died, August 9.

Charles Lawrence Cabalzer, Indianapolis; Indiana University School of Medicine, Indianapolis, 1908; member of the Indiana State Medical Association; assistant professor of sur-

⊕ Indicates "Fellow" of the American Medical Association.

gery at his alma mater; member of the Associated Anesthetists of the United States and Canada; aged 49; died, July 26, of carcinoma of the stomach.

James Cyrus Tucker ✠ Beatrice, Neb.; University of Nebraska College of Medicine, Omaha, 1912; member of the American Academy of Ophthalmology and Oto-Laryngology, and the American Laryngological, Rhinological and Otological Society; on the staff of the Lutheran Hospital; aged 45; died, July 3, of nephritis.

Ebenezer Wideman Pressly, Clover, S. C.; University of Maryland School of Medicine, Baltimore, 1887; member and past president of the South Carolina Medical Association; formerly member of the state board of medical examiners; served during the World War; aged 68; died, July 24, of cerebral hemorrhage.

Howard Oscar Shafer ✠ Rochester, Ind.; College of Physicians and Surgeons, Chicago, 1902; member of the Illinois State Medical Society and the American College of Surgeons; aged 51; formerly physician in charge of the Woodlawn Hospital, where he died, July 24, of pulmonary tuberculosis and embolism.

Harry R. Hermesch ✠ Medical Inspector, Commander, U. S. Navy; Georgetown University School of Medicine, Washington, D. C., 1907; member of the American College of Surgeons; entered the navy in 1907; aged 53; died, July 4, in the United States Naval Hospital, Mare Island, Calif.

Emory Wallace Strickler, Fairmont, W. Va.; Eclectic Medical Institute, Cincinnati, 1889; Baltimore Medical College, 1893; member of the West Virginia State Medical Association; president of the Marion County Medical Society; formerly on the staff of the Cook Hospital; aged 65; died, July 1.

Charles Cullom Gault ✠ Owatonna, Minn.; University of Minnesota Medical School, 1921; formerly assistant professor of physiology at his alma mater, and professor of physiology, University of Texas School of Medicine, Galveston; aged 37; was killed, July 24, in an airplane crash.

Albert Judson Cook, Los Angeles; Medical Department of Western Reserve University, Cleveland, 1872; formerly member of the board of health of Cleveland; at one time on the staff of St. Alexis Hospital, Cleveland; aged 81; died, July 28, of arteriosclerosis.

Edward Lawrence Creeden ✠ New York; Columbia University College of Physicians and Surgeons, New York, 1901; acting director of the bureau of preventable diseases, department of health; aged 55; died, July 31, in the Presbyterian Hospital, of mediastinitis.

George S. Tweedie ✠ Sandusky, Mich.; Detroit College of Medicine, 1886; secretary and past president of the Sanilac County Medical Society; mayor of Sandusky; medical superintendent of a hospital bearing his name; aged 70; died, July 23, of heart disease.

Helmuth Carl Jaeger, North Tonawanda, N. Y.; University of Buffalo School of Medicine, 1931; intern, Evangelical Deaconess Hospital, Buffalo; aged 25; died, July 25, in the Mercy Hospital, Buffalo, of injuries received in an automobile accident.

William Anthony Potts, Lansing, Ill.; Milwaukee Medical College, 1908; member of the Illinois State Medical Society; health officer of Lansing; on the staff of St. Margaret's Hospital, Hammond, Ind.; aged 52; died, July 20, of myocarditis.

Frank Lincoln Abbey, Newton, Kan.; College of Physicians and Surgeons, Medical Department, Kansas City University, 1897; member of the Kansas Medical Society; on the staff of the Axtell Christian Hospital; aged 70; died, June 25.

John William A. Busch, Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1899; member of the Medical Society of the State of Pennsylvania; aged 57; died, July 25, of pyonephrosis and nephrolithiasis.

Charles Frederick King ✠ Hudson, Wis.; Rush Medical College, Chicago, 1873; veteran of the Civil and Spanish-American wars; for many years health officer of Hudson; aged 86; died, July 20, of cerebral hemorrhage.

Robert Constantine Griffith, Toronto, Ont., Canada; University of Toronto Faculty of Medicine, 1891; on the staff of the Grace Hospital division of the Toronto Western Hospital; aged 62; died, June 10.

Floyd W. Noble, Florence, Kan.; University Medical College of Kansas City, 1905; member of the Kansas Medical Society; aged 52; died, July 11, at a hospital in Newton, of cardiorenal disease.

William G. Pettus, Georgetown, Texas; University of Maryland School of Medicine, Baltimore, 1867; member of the State Medical Association of Texas; Civil War veteran; aged 87; died, May 14.

John Thomas Cahill, Lawrence, Mass.; Harvard University Medical School, Boston, 1896; member of the Massachusetts Medical Society; formerly mayor of Lawrence; aged 63; died, June 26.

Eugene E. Terry, Longview, Texas; Medical Department of the Tulane University of Louisiana, New Orleans, 1903; member of the State Medical Association of Texas; aged 52; died, June 8.

Ida May Lathrop Malpas, San Francisco; Cooper Medical College, San Francisco, 1897; member of the California Medical Association; aged 67; died, June 17, of cerebral hemorrhage.

James H. Glass ✠ Trenton Falls, N. Y.; Bellevue Hospital Medical College, New York, 1877; member of the American College of Surgeons; aged 77; died, August 4, of chronic endocarditis.

Orren Sumner Eckelberry, San Francisco; Stanford University School of Medicine, San Francisco, 1928; aged 30; died, June 22, in the Pottenger Sanitarium, Monrovia, of pulmonary tuberculosis.

Albert Squire Bosworth ✠ Elkins, W. Va.; Baltimore Medical College, 1893; on the staff of the Elkins City Hospital; aged 72; died, July 17, of paralysis and carcinoma of the colon.

Thomas James Fitzmaurice, Lewiston, Maine; Jefferson Medical College of Philadelphia, 1877; member of the Maine Medical Association; aged 80; died in April of abdominal carcinoma.

Walter Sickles, Long Island City, N. Y.; Medical Department of the University of the City of New York, 1894; aged 60; died, April 9, of cerebral hemorrhage due to an automobile accident.

Lucius C. Andrews, Pitcher, N. Y.; Medical Department of the University of the City of New York, 1880; member of the Medical Society of the State of New York; aged 78; died, June 29.

Edmond Lazare Aucoin, Montreal, Que., Canada; University of Montreal Faculty of Medicine, 1920; aged 38; was drowned, July 19, in the St. Lawrence River, while bathing.

Joseph Francis Chmelicek-Luhan, New York; Medical Department of the University of the City of New York, 1890; veteran of the Spanish-American War; aged 64; died, June 30.

Maurice Thomas Lewis, Brooklyn; Long Island College Hospital, Brooklyn, 1893; member of the Medical Society of the State of New York; bank president; aged 64; died, July 8.

John Rothwell Kestell, Northville, Mich.; Michigan College of Medicine and Surgery, Detroit, 1891; aged 71; died, July 19, of erysipelas of the face and cerebral arteriosclerosis.

Andrew Martin Barr, Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1894; member of the Medical Society of the State of Pennsylvania; aged 64; died, July 1.

George Walter Roller, Lancaster, Ohio; Keokuk (Iowa) Medical College, 1891; member of the Ohio State Medical Association; aged 71; died, July 28, of diabetes mellitus.

Lester Emmett Cross, Stockton, Calif.; Homeopathic Medical College of Missouri, St. Louis, 1873; aged 89; died, June 18, of mitral insufficiency and arteriosclerosis.

John W. Hamilton ✠ Warren, Pa.; Jefferson Medical College of Philadelphia, 1881; on the staff of the Warren General Hospital; aged 74; died, May 3, of myocarditis.

Marcus Arthur Newell, Leavenworth, Kan.; Medical Department of Columbia College, New York, 1890; served during the World War; aged 63; died, July 10.

Joseph J. McKinnon, Wadena, Minn.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1893; aged 68; died, July 31, of cerebral hemorrhage.

Seymour Nicholas Greaves, Loma Linda, Calif.; Chicago College of Medicine and Surgery, 1909; aged 56; died, June 13, of coronary thrombosis and bronchopneumonia.

Andres Christen Werner, Worcester, Mass.; Royal University of Lund Medical Faculty, Lund, Sweden, 1889; aged 74; died, July 27, of carcinoma of the stomach.

Isaac Newton Suttle ✠ Corsicana, Texas; Kentucky School of Medicine, 1885; past president of the Navarro County Medical Society; aged 73; died, July 19, of sarcoma.

Herbert Leavitt Cooper, Ashburn, Mo.; University of Vermont College of Medicine, Burlington, 1896; aged 61; died, July 11, of heart disease.

Joseph Thomas Caruso, Brooklyn; Long Island College Hospital, Brooklyn, 1925; member of the Medical Society of the State of New York; aged 30; died, July 18.

George Philip Sattler, Mansfield, Ohio; University of Wooster Medical Department, Cleveland, 1872; Civil War veteran; aged 86; died, July 27, of carcinoma.

Adelbert Allen Clark, Los Angeles; State University of Iowa College of Medicine, Iowa City, 1884; aged 76; died, June 6, of myocarditis and arteriosclerosis.

James C. Carleton, Bonham, Texas; University of Louisville (Ky.) School of Medicine, 1892; aged 65; died, June 30, of arteriosclerosis and spastic paralysis.

George Lyon Williams ⊕ Columbus, Ohio; Ohio Medical University, Columbus, 1905; aged 60; died, July 20, of pernicious anemia and cerebral hemorrhage.

William Duncan McDougall, Pacific Grove, Calif.; University of Buffalo School of Medicine, 1882; aged 74; died, June 7, of carcinoma of the prostate.

Ammi Keyes Johnson, San Bernardino, Calif.; Hahnemann Medical College and Hospital, Chicago, 1878; aged 79; died, June 16, of cerebral hemorrhage.

Thomas De O. Gilchrist, Philadelphia; University of Maryland School of Medicine, Baltimore, 1909; aged 49; died, July 12, in Reno, Nev., of pneumonia.

John Gaunt Evans, Winfield, Kan.; Medical College of Ohio, Cincinnati, 1881; aged 75; died, July 22, of arteriosclerosis and cerebral hemorrhage.

John Cameron Ross, Beverly Hills, Calif.; University of Oregon Medical School, Portland, 1905; aged 64; died, June 24, of splenomyelogenous leukemia.

Thomas Green Isherwood, West Chicago, Ill.; Rush Medical College, Chicago, 1883; aged 74; died, July 19, of ruptured aortic aneurysm.

Hiram C. Bear, St. Charles, Minn.; Hahnemann Medical College and Hospital, Chicago, 1883; aged 69; died, July 25, of cerebral hemorrhage.

A. E. Henderson, Bemidji, Minn.; Hahnemann Medical College and Hospital, Chicago, 1883; aged 75; died in July of cerebral hemorrhage.

Norflet W. Nelms, San Diego, Calif. (licensed, Missouri, 1884); aged 82; died, May 22, of bronchopneumonia after a fall in his home.

Harry Lee Dalby, Sparks, Nev.; College of Physicians and Surgeons, Dallas, Texas, 1905; aged 57; died, July 23, of cerebral hemorrhage.

Silvey Jennings Wilson, Versailles, Ill.; College of Physicians and Surgeons, Keokuk, Iowa, 1888; aged 79; died, July 21, of carcinoma.

James C. Bainbridge, Santa Barbara, Calif.; California Medical College, San Francisco, 1894; aged 68; died, June 5, of myocarditis.

Sylvester E. Hutchins, Trempealeau, Wis.; Rush Medical College, Chicago, 1892; aged 63; died, July 19, of diabetes and nephritis.

Thomas Blakeslee, Neodesha, Kan.; Rush Medical College, Chicago, 1870; aged 87; died, July 11, of cerebral hemorrhage.

William Turner Davis, Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1896; aged 58; died, April 13.

Louis Bigler ⊕ Gettysburg, Ohio; Ohio Medical University, Columbus, 1899; aged 69; died, July 29, of intestinal influenza.

Becher B. Bolton, Glendale, Calif.; California Medical College, San Francisco, 1891; aged 59; died, June 11, of angina pectoris.

Moses Randall Ingram, Tinsley, Ky.; Hospital College of Medicine, Louisville, 1905; aged 53; died, June 26, of carcinoma.

Henry G. Krause, Newark, N. J.; University of Strasbourg, Germany, 1879; aged 75; died, July 5, of pneumonia.

John Hancock McClellan ⊕ Chicago; Rush Medical College, Chicago, 1911; aged 55; died, July 9, of heart disease.

Martin J. Dwyer, New York; Albany Medical College, 1883; aged 71; died, July 12, of carcinoma of the stomach.

Elizabeth Woods, Toledo, Ohio; Woman's Medical College of Baltimore, 1891; aged 65; died, May 29, of senility.

T. Z. Canterberry, Bessemer, Ala.; Birmingham Medical College, 1913; aged 44; died, July 22, of pneumonia.

Edward L. Smith, Hatboro, Pa.; Jefferson Medical College of Philadelphia, 1887; aged 66; died, May 1.

Bureau of Investigation

MISBRANDED "PATENT MEDICINES"

Abstracts of Notices of Judgment Issued by the Food and Drug Administration of the United States Department of Agriculture

Sakula Salve.—The Yamato Company, Inc., Minneapolis, shipped in September, 1929, into Ohio a quantity of Sakula Salve which was declared misbranded. Analysis by the federal chemists showed it to consist essentially of fat, wax, rosin and camphor. It was recommended for all skin diseases, was said to feed the skin and tissues, was a reliable remedy for blood poisoning, etc. These claims were declared false and fraudulent, and in January, 1930, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed. —[*Notice of Judgment 17377; issued February, 1931.*]

Zarpas Ointment.—Nick Zarpas of Monessen, Pa., shipped in December, 1929, to New York a quantity of Zarpas Ointment which was declared misbranded. The federal chemists reported that the Ointment contained camphor, sulphur, ground black mustard and red pepper. It was recommended for rheumatism, psoriasis, ringworm, eczema, pimples, body lice and face eruptions. The claims were declared false and fraudulent and in June, 1930, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 17379; issued February, 1931.*]

Anti-Flamma Plaster.—The Bayles Distributing Company of Kansas City, Mo., shipped in July, 1929, into Kansas a quantity of Anti-Flamma Plaster which was declared mis-

LEG TROUBLES
ANTI-FLAMMA A Soothing, Protective Poultice to be worn while you work.
SOLD FOR 25 YEARS. Write today, describe trouble and get SAMPLE FREE
BAYLES DISTRIBUTING CO., 1868 Grand, Kansas City, Mo.

branded. The federal chemists reported that analysis showed the article to be a plaster containing red lead and linseed oil and that bacteriologic examination proved that the article was not antiseptic. This nostrum was advertised as being an antiseptic and a remedy for leg sores, abscesses, boils, blood poisoning, rusty nail punctures, ulcers, etc. These and several other claims were declared false and fraudulent, and in October, 1929, the Bayles Distributing Company admitted the allegation, judgment was entered and the product was released under bond, on condition that it be relabeled and that the claimant pay the costs.—[*Notice of Judgment 17376; issued February, 1931.*]

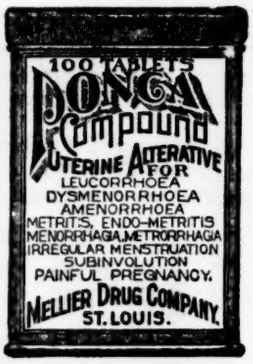
Witmer's Coughine.—The National Drug Company, Cardin, Okla., shipped in January, 1929, to Missouri a quantity of Witmer's Coughine which was declared misbranded. Federal analysis showed it to consist essentially of small amounts of ammonium chloride, creosote, guaiacol, camphor, chloroform, sugar and water. The claims made that it was a remedy for coughs, pneumonia, bronchitis, asthma, consumption, croup, etc., were declared false and fraudulent. In April, 1929, the National Drug Company of Joplin, Mo., claimed the property, and after executing a bond to insure relabeling the product truthfully and paying the costs of the case, were permitted to have the preparation.—[*Notice of Judgment 17383; issued February, 1931.*]

Acotin.—The J. R. Watkins Company, Newark, N. J., shipped in the latter part of 1929 to California a quantity of Acotin which was declared misbranded. Analysis by the federal chemists showed the tablets to contain phenacetine (acetphenetidin), aspirin (acetylsalicylic acid) and starch. The product was first declared misbranded because the correct amount of acetphenetidin was not declared on the label as required by the law. It was also declared misbranded because the claim that it was a remedy for rheumatism, neuralgia, influenza, lumbago, etc.,

was false and fraudulent. In May, 1930, the J. R. Watkins Company of Winona, Minn., admitted the government's allegations and judgment of condemnation and forfeiture was entered. The product was then released to the Watkins concern on the payment of costs and the execution of a bond, conditioned in part that the stuff be relabeled truthfully.—[*Notice of Judgment 17386; issued February, 1931.*]

Emerson's Honduras Sarsaparilla.—The Emerson Medicine Company of Kansas City, Mo., shipped in March, 1930, to the State of Washington a quantity of Honduras Sarsaparilla that was declared misbranded. Analysis showed it to consist essentially of extracts of plant drugs, including a laxative, traces of salicylic acid, alkaloids, glucosides and potassium iodide, alcohol and water. The claim that it was a remedy for lumbago, sciatica, rheumatism, general debility and a large number of other conditions was declared false and fraudulent. In June, 1930, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 17387; issued February, 1931.*]

Ponca Compound.—The Mellier Drug Company, St. Louis, shipped in July, 1929, a quantity of Ponca Compound that was declared misbranded. The Bureau of Chemistry reported that analysis showed the tablets to contain baking soda, sulphur and plant extractives. The claim made for the preparation was that it was a remedy for leucorrhea, dysmenorrhea, amenorrhea, metritis, endometritis, irregular menstruation, painful pregnancy, etc. These claims were declared false and fraudulent, and in June, 1930, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed. — [*Notice of Judgment 17378; issued February, 1931.*]



[Ponca Compound was the subject of a report of the Council on Pharmacy and Chemistry published in THE JOURNAL, July 17, 1915. The Council at the time called attention to the semisecret and indefinite composition of the product and the grossly exaggerated therapeutic claims made for it.]

Kaufmann's Sulphur Bitters.—A. P. Ordway and Company of New York City shipped in January, 1930, to Maryland a quantity of Dr. Kaufmann's Sulphur Bitters that was declared misbranded. Analysis by federal chemists showed the product to consist essentially of extracts of plant drugs, including aloe, podophyllum and a bitter drug, such as gentian, a very small amount of sulphur in alcohol and water. The product was first declared misbranded because the name Sulphur Bitters, was false and misleading, since there was but a minute amount of sulphur present; it was further declared misbranded, because the claims, that it was a remedy for "impure blood," dysmenorrhea, boils, goiter, pimples, sick headache, liver complaint, chronic rheumatism, etc., were false and fraudulent. In June, 1930, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 17390; issued February, 1931.*]

Torb.—The Crystal Chemical Company, New York City, shipped in November, 1929, into Pennsylvania a quantity of Torb that was declared misbranded. The product was an ointment with a petrolatum base, mineral matter such as clay, and a small amount of boric acid. No torbernite was found. The stuff was declared adulterated because of the claim, "Contains the rare radium mineral, torbernite." The curative claims, to the effect that it would relieve pain and congestion, was a remedy for skin trouble, piles, pleurisy, pneumonia, etc., were declared false and fraudulent. In April, 1930, Torb Inc., Allentown, Pa., appeared as claimant; judgment of condemnation and forfeiture was entered and the court permitted the product to be released to Torb Inc., upon payment of costs and the execution of a bond, conditioned in part that the stuff be relabeled truthfully.—[*Notice of Judgment 17301; issued January, 1931.*]

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

TREATMENT OF VERTEX OCCIPUT POSTERIOR POSITION

To the Editor:—The article by Dr. Samuel M. Dodek on the treatment of more than 500 consecutive cases of vertex occipitoposterior position (THE JOURNAL, May 16) is of great interest. As a sample of splendid, textbook, academic writing, it deserves commendation. As a guide in the vicissitudes of daily practice, where, according to all recent credible testimony, about one case in every three falls into the class of occipitoposterior position, I greatly fear its influence. Too much of a bugbear is made of occipitoposterior presentation. After fifty years of obstetric practice, involving the management of thousands of such presentations, I am reminded of the homely and proverbial conquest of the "man of straw."

Dodek admits that about 30 per cent of these occiput posterior presentations end quickly and easily in spontaneous anterior rotation and forceps. He omits to say that this anterior rotation does not occur until the presenting part has advanced sufficiently to meet the resistance of the pelvic floor, by which time it has also arrived at a plane in the pelvis where the resistance to its advance toward the front and under the pubic arch is at a minimum. If this is true, forcing the occiput to the front at a higher plane is a costly mistake. Likewise, this mistake is greatly increased by grasping the head in any forceps blades of the conventional type. Thus held, the head advances only at the expense of increased resistance with consequent frequent intracranial hemorrhage. (Traction rods are of little benefit.) To call the occiput posterior position abnormal is not generally admitted; the large head leading to obstruction, partial or complete, is not normal, be the occiput anterior or posterior to the pelvic transverse diameter, a totally different matter. Here, too, I am convinced a difficult case has its difficulties increased by manual rotation or the Scanzoni maneuver, modified or not modified. In about 30 per cent of Dodek's cases, rotation occurred spontaneously, 147 being terminated by forceps, and 1 being delivered spontaneously and fatally for the baby. Were these all abnormal? I think it would be rash to say so. What about the 70 per cent? An impartial answer to this question, judged by the results to mother and baby, is very abnormal in every one of the six groups.

What might have happened to the two mothers who died and the twenty-three babies who met a (fetal) neonatal death on their way to earth had Kielland (or Barton) forceps been used is hard to say. But on the basis of nearly 600 cases in my practice during the past six years I have yet to see any harm thus done to a baby's head or any increase of morbidity or any maternal fatality. Finally, let me issue a warning as to group 6: Let us forego early resort to the cesarean operation even though not one of the eighteen mothers in this group died.

Hawks (Maternal Mortality in 582 Abdominal Cesarean Sections, *Am. J. Obst. & Gynec.* **18:** 393 [Sept.] 1929) puts it in the following words: "It is one of the causes of the rising maternal mortality about which we are concerned. When cesarean section is chosen, the consequences should be remembered. The first result is more deaths from one cause or another . . . danger of rupture in the succeeding pregnancy, . . . increased rate or mortality in the repeated section, . . . ventral hernia, . . . adhesions, . . . therapeutic abortion. Finally, there is the end-result of disturbed marital relation and limited productivity."

Tersely and pointedly also he says: "The Barton and Kielland forceps, as well as better technic in version and extraction, due to Potter's teaching, have improved the means of vaginal delivery. They have helped in the deliveries of women who might have been sectioned."

Miller (*Am. J. Obst. & Gynec.* **14:** 781, 1927) says: "My own opinion is that we have no right to perform cesarean section on any but absolute and established indications until every possibility of vaginal delivery has been weighed and discarded."

I should like to know to what extent operative intervention, sections and forceps, was employed in the 70 per cent of so-called normal presentation, occiput anterior.

One hundred per cent operative delivery would impress most obstetricians as amazingly high in the abnormal group of cases here treated. How did the single infant delivered spontaneously after spontaneous rotation get by without forceps, too late, however, to live? Obviously, it, too, should have been helped into the world!

DANIEL LONGAKER, M.D., Philadelphia.

[NOTE.—For purpose of discussion, the letter of Dr. Longaker was referred to Dr. J. B. De Lee, who replies:]

I have reread Dr. Dodek's article on the treatment of occipitoposterior position and have studied the remarks of your correspondent. There is much truth in both discussions and the differences of opinion can never be fully harmonized.

In the first place, the quality of obstetric material varies. A man practicing in a community where contracted pelves are rare, a peasant class of women, will find few occiput posteriors that need correction; indeed, few obstetric operations at all. A man whose clientele is made up of pampered women will not be able to permit nature to take its course and will have many operations.

Again, small groups of cases differ from large. Dodek in 1,723 cases found 29.8 per cent occiput posteriors. In the last 17,838 births (six years) of the Chicago Lying-In Hospital, we had 2,189 occiput posteriors, or 12.2 per cent. Dodek had 54.7 per cent right and 45.3 per cent left positions, while ours were nearly the opposite, 52 per cent left and 48 per cent right, and most textbooks show a much greater preponderance of right positions over left.

The quality of the patient's soft parts and the strength of her pains have usually a deciding influence on the course of treatment to be pursued.

In the 2,189 cases of occiput posterior presentations, 956 deliveries, or 43.6 per cent, terminated without intervention, and numerous others (the number not obtainable readily) terminated spontaneously after manual rotation. A large number of cases were terminated by easy low forceps after nature had successfully effected anterior rotation. It seems that occiput posterior is made "too much of a bugbear" in Dodek's article, both as to frequency and as to difficulty of management.

Cesarean section was never done on the single indication of occiput posterior position. There is no doubt that the high mortality in childbirth in the United States is kept up by cesarean section done on slim indications, and of these persistent occiput posterior position is one of the slimmest.

Regarding Barton's and Kielland forceps: We have tried out both and find that we can do with the old Simpson (long model), aided by the hand, everything that the new instruments can accomplish. Although both forceps are in the instrument case—readily available—the men prefer the old reliable Simpson. I think that there is an occasional occiput posterior presentation in which the Barton forceps could be used, but I have yet to find one in which the Kielland was actually necessary.

Regarding the method of rotation, there are many individual preferences, but it is hard to see why the human hand should not excel all instruments for this purpose. It is a sentient, seeing instrument, wondrously adaptable, and should be used up to the point of its limitations, then succeeded by less safe, though necessary, means.

In recommending operative measures to the general practitioner, and it is he who still conducts the majority of births, one must be very conservative—very—because he has not had the opportunity to acquire the great amount of skill absolutely needful to improve on nature's method. True, nature is often destructive to both mother and baby; but the unskilled doctor may be more so.

Patience is the great desideratum in the treatment of occiput posterior positions; watchful expectancy reaps its finest rewards here. Pituitary extracts are being used too much by impatient accoucheurs and to its dangers must not be added those of untimely and unskilled operative intervention.

The treatment of occiput posterior position as practiced at the Chicago Lying-in Hospital is, briefly, as follows:

First, a careful diagnosis is made of the cause of the abnormal position, as this may demand a special course of conduct. There may even be an indication for elective cesarean section—contracted pelvis, very big baby, placenta praevia. Pelvis and soft parts being normal and there being no immediate indication for any intervention, watchful expectancy. Narcotics, food, liquids, encouragement will carry the patient through a sometimes (not always) tedious first stage. The bag of waters is kept until complete dilatation of the os has been secured, or longer to allow general retraction of the paracervical and vaginal tissues.

If the head is engaged we wait for one-half to two hours of good pains for rotation to occur, aiding it by keeping the parturient on the side of the occiput, by pressing up a little on the synciput (by rectum), occasionally by gentle (vaginal) attempts to rotate during a pain with two fingers placed on the lateral inclined plane of Hodge, on the side of the occiput, or by pushing the forehead back. One may thus aid natural rotation a little, but the fetal heart must be carefully watched.

The time of intervention varies much, depending on the condition of mother and baby. If it is necessary to deliver, we turn the occiput to the front, using a combined manual method, leaving the case to nature if this appears wise, or we complete the delivery by low forceps and episiotomy. If the hand fails to rotate the head we use the "key-in-lock" forceps operation. This is a combination of Smellie's, Scanzoni's, Tarnier's and Bill's maneuvers. By very gentle small movements the head is lifted up, twisted, spiraled, "coaxed" around into an anterior segment of the pelvis, and then drawn down and out as usual.

When the head remains persistently high and in the abnormal position the case now becomes formidable, and one must consider all its aspects carefully. Often a mistake in the diagnosis of the cause has been made, but rarely is it necessary to rush to a cesarean section. One should obtain complete dilatation of the cervix at all costs of patience and to the limit of the strength of the parturient, and then rupture the membranes. If the head does not come down very soon, version is indicated. If the labor is far advanced and the head fixed in the inlet, version is dangerous. Here forceps are indicated, even high forceps. It is needful to distinguish two kinds of high forceps: those in contracted pelvis or large baby, and those under normal conditions. In the former, even a skilful operator will do damage; in the latter, he can often achieve brilliant success. Failing the forceps and version being now out of the question, all the general practitioner has left is craniotomy, whether the baby is alive or dead. The expert obstetric specialist in his adequately equipped maternity can still consider pubiotomy and laparotrachelotomy (low, cervical cesarean section), but when these operations are done even under the most favorable operative conditions many women will lose their lives for the sake of saving the baby. Unfortunately even their sacrifice may be in vain, as the baby, injured by long labor and attempts to deliver, too often succumbs too.

There is no doubt in my mind that we have gone too far in forcing the conditions for cesarean section.

SKIN SENSITIVITY

To the Editor:—Please give me such information as you may have regarding the local action of solution of pituitary on the skin. I was delivering a patient in the hospital and ordered the nurse assisting to give the patient a 0.5 cc. of obstetric solution of pituitary. She supposedly sterilized the outer surface of the left arm with pure grain alcohol such as is used for that purpose in the hospital, and injected the solution, according to her statement, into the muscle of that region. In a few minutes the patient complained of severe burning of her arm. I was busily engaged with the delivery and did not pay attention to the complaint until the delivery was completed, at which time the patient still complained of burning. On investigation, I found an area on the arm which would approximately be the area rubbed by the alcohol, which was colored a deep red and was burning severely. The nurse stated that the reaction was one due to the solution of pituitary, as she had seen previous similar reactions. However, I had not had such experiences, and as the area appeared to be more or less that of a burn, I ordered a dressing of antipyrexol, a preparation which is used considerably in this section. The patient during the first few days of her stay at the hospital complained of the burning, and I kept a dressing on. The day or so before she left there followed an exfoliation of the skin over the affected area. This has been a matter of several months and at present there is no scarring, the trouble seemingly affecting only the outer layer of skin. This patient threatens suit against the hospital, claiming that something other than alcohol was used. The nurse is an experienced one with an excellent reputation, and she maintains that she used the regular pure grain alcohol, which is provided for that purpose. A hypodermic of one-eighth grain (8 mg.) of morphine given in the right arm with the area sterilized by the same alcohol did not produce any such reaction. Kindly omit name.

M.D.

ANSWER.—No report of dermatitis due to solution of pituitary has been found in the literature. Obstetricians of wide experience have never seen such a reaction. Theoretically, a local reaction is possible in case of a poor preparation, for a certain amount of histamine is said to be present in solution of pituitary. The reaction described seems much more like a dermatitis venenata. Pure alcohol does not cause such a reaction unless used with great friction over a considerable time. Was the alcohol denatured? If so, the denaturing agent or agents might be the offenders. The fact that the other arm did not react to the same alcohol would not rule out such an effect entirely, for local sensitization is a well established fact.

USE OF HEAT IN INFECTION OF JAW

To the Editor:—Is the application of heat (either moist or dry, with or without light) contraindicated in the presence of infection of the jaw following the extraction of a tooth or with infection about a tooth? I mean, of course, the application of the heat over the outside of the jaw, on the skin. The statement is made here by a dentist that such heat application tends to fistula formation through the skin, and that the dental department at the Mayo Clinic gave printed warnings against this procedure.

S. B. BLAKELY, M.D., Binghamton, N. Y.

ANSWER.—Heat in almost any form is, as a general thing, indicated rather than contraindicated in the presence of infection of the jaw. In Germany and Austria the regular heat lamp is used almost as a routine, with a great deal of success. While dry heat is more soothing when first applied, moist heat gives more prolonged relief. Moist heat has been used as a routine measure after extractions without abscesses breaking through the outside of the face. Judgment must of course be used; in most instances abscesses can be prevented from breaking through the skin by lancing at the proper time from within the mouth. No one fixed procedure can be advocated indiscriminately. No one is able at the outset to anticipate just the course an abscess will take before or after extraction.

HOSPITAL CONTROL OF CASES OF CONCUSSION

To the Editor:—We frequently have admitted to our hospital cases of concussion of the brain, cases which the newspaper reports usually describe as "possible fracture of the skull" and which on further examination show either linear fracture without depression or no fracture at all. Under the present arrangement, these cases are treated by the surgical service. It is my opinion that, in case a hospital has a neurosurgical service, such cases should naturally be treated in that department. Here, however, we have no neurosurgery, and none of the general surgeons have any particular experience with neurologic problems. It is therefore my contention that these patients would be better off if treated by the neurologic department, in which the treatment of concussions is naturally better understood. This question arises from my observation that within the last year I had many cases of chronic concussion referred to me which showed definite symptoms of destruction and in which a spinal puncture had never been performed. I intend to submit this problem to our medical staff but, before doing so, I should be indebted to you if you could let me know your own opinion or at least the procedure which is followed up in any first class hospital without a neurosurgical department.

M.D., New Jersey.

ANSWER.—Opinions vary as to the proper organization for the adequate treatment of injuries to the head in hospitals in which there is no neurosurgical department.

In general it may be said that, whether the case is admitted to the surgical or the neurologic service, consultation between the neurologist and the surgeon should be obligatory.

A neurologic opinion is probably of more importance in relation to the proper procedure at some given time following the injury but, on the other hand, surgical judgment is equally important with regard to the feasibility of a proposed procedure and the time to do it. If it is possible to call in a surgical consultant who will assume the responsibility for any surgical procedure that may be necessary, the patient should be admitted to the neurologic ward to the end that complete records of neurologic examination be made throughout the course of the convalescence. Often the physical arrangement of the hospital makes it inconvenient for the surgical care of patients in medical wards.

Opinions as to the method of treating skull injuries vary not only between neurologists and surgeons but also between neurologists themselves and neurosurgeons as well. Not every neurologist or neurosurgeon is committed to the opinion that spinal puncture is even permissible in many cases. Such differences of opinion should not constitute a reason for one or the other arrangement. It is certain that surgeons should not be asked to assume responsibility for some other person's judgment.

It can be seen that, so long as a neurologist is obliged to see each case, to record his observations, to discuss the diagnosis and to advise with the surgeon as to the proper procedure, it makes little difference to which service the patient is admitted. A spirit of friendly cooperation may in many instances produce results which can approximate those obtainable in hospitals with a neurosurgical department.

ULTRAVIOLET RADIATION IN PERNICIOUS ANEMIA

To the Editor:—In the February issue of the *British Journal of Actinotherapy and Physiotherapy* is an article by David I. Macht of Baltimore, in regard to the treatment of pernicious anemia with ultraviolet rays in which especial reference is made to the determination of the toxins of various specimens of blood from patients with anemia, as tested by the growth of normal *Lupinus albus*. I should like to know whether this is a scientific phase of the study of pernicious anemia, and if such determination of the toxicity of blood serum is of any value.

J. R. FOWLER, M.D., Spencer, Mass.

ANSWER.—Dr. Macht's phytopharmacologic test for pernicious anemia is well known and has been widely accepted, although laboratory confirmation by other men does not seem to be available.

There appears to be something in the serum of pernicious anemia patients that inhibits the normal growth of a bean known as *Lupinus albus* under specific, carefully controlled laboratory conditions. In hundreds of instances Macht seems to have been able to diagnose pernicious anemia by this method without knowing anything about the patient. Thus far there has been no other condition that produces anemia that gives a positive test by this method. One skin disease, pemphigus, often but not always has the same effect on this test as does pernicious anemia, and there are a few other diseases that occasionally give a positive test or a slightly positive reading. Pernicious anemia is the only disease that always gives a positive and a high reading.

So far as concerns Macht's experiments with the effect of radiation therapy on pernicious anemia, it is really too soon to make any comments. Apparently in a few instances he found a lessening of the phytopharmacologic index or a lessening of the toxicity after pernicious anemia had been thus treated. But this may be no more than might occur from the normal fluctuation of pernicious anemia. Considerably more time, experience and work will have to be had before it would be wise to place any reliance on the use of ultraviolet radiation in pernicious anemia.

MAKING A DIABETIC PATIENT SUGAR FREE

To the Editor:—A man, aged 60, has mild glycosuria. He was previously moderately obese but has reduced to normal weight. He is organically sound, in excellent health, and can keep the urine sugar free on a moderately restricted intake of carbohydrates and without the use of insulin. It appears to be fully as necessary for him to restrict his diet to hold his weight to normal as it is to keep the urine sugar free. In a case of this kind please explain whether there is any damage in occasionally passing sugar in the urine after an excessive intake of carbohydrates, just as one with normal islands of Langerhans would do. Further, in a case of this kind just how is the damage done or the disturbances of metabolism brought about when a patient continually excretes sugar in the urine, but remains well nourished? Please omit name.

M.D., Tennessee.

ANSWER.—Although the patient probably has a true diabetes, the diagnosis should be established by a fasting blood sugar and if necessary a sugar tolerance test. If he has diabetes, the carbohydrate quota should be restricted so that he remains sugar free. Persistent glycosuria tends to lower the dextrose tolerance, probably by overfatigue of the islets. Joslin says, "The best writers are all most emphatic in their approval of the endeavor to promote tolerance for sugar by rendering the patient sugar free." If the blood sugar and dextrose tolerance curve are normal, the patient has an innocent glycosuria and restriction of carbohydrates is not necessary.

CEREBRAL SPASTIC PARALYSIS—LITTLE'S DISEASE

To the Editor:—What is Little's disease? What is the cause? What treatment is usually indicated? What are the probabilities for complete cure or for improvement? The patient in question is a well nourished, well developed girl, aged 21 months, in excellent general health; she has a good appetite, good color and no deformities, yet she cannot walk and cannot sit up without assistance. She recognizes her parents and others in the family, laughs—sometimes spontaneously—and reacts quickly to noise and other stimuli. She appears to be physically normal except that her legs seem long in proportion to the torso. Neuromuscular coordination is poor throughout the whole body. While there is noticeable impairment of the intellectual powers, this is not pronounced. The child has been described as a "slow baby," and the condition as Little's disease; but, other than the inability to walk, and to sit up without assistance, lack of interest in her immediate environment, and some impairment of the mental faculties, the child seems normal. Two other children in the family are normal in every respect, and there is no family history of paralysis in any form, or of mental deficiency.

HENRY G. STEILEN, Brooklyn.

ANSWER.—Cerebral spastic paralysis in childhood, called Little's disease, is a condition characterized by loss of muscle control, incoordination, increased tendon reflex, impaired mentality and deformity. It is due to disease or injury of the cerebral motor centers affecting the upper motor neurons which control the voluntary muscles, especially those of the extremities.

The causes of congenital spastic paralysis are cerebral defect, such as defective development of the brain, or intra-uterine brain softening, cysts or hemorrhage.

The mentality of these patients varies from normal to complete imbecility. Most of them, however, have a retarded mental development, due in part to the cerebral insult and in part to the restricted life these children lead with its lack of educational opportunity gained from association with other children. The disposition of these children also varies considerably; some are normal, some are too placid and content, while others are irritable, obstinate and destructive.

The prognosis as to improvement depends chiefly on the extent of cerebral damage and on the treatment given. Unfavorable factors are poor mentality, contractures and athetosis.

The probabilities for a complete cure cannot be stated briefly, but the probabilities for improvement are usually good.

The treatment depends on the presence of disability, deformity and mental impairment. In answer to the question concerning the child whose condition is described, it is indicated to provide neuromuscular education; also some mechanical device to assist the child in sitting, standing and walking. This may include a spine brace, neck brace, well fitted high-laced shoes and possibly a leg brace and some type of walking apparatus, known as walkers.

The simplest type of walking apparatus consists of a four-post cage on wheels with adjustable axillary crutches. Under careful instruction, swimming in warm water may be valuable.

Through neuromuscular education or reeducation by carefully graduating persistent personal training, the child is taught simple

movements. The object is to obtain relaxation, coordination and concentration, to inhibit antagonistic movements, to develop the movements present, to acquire new ones, to strive for grace in motion and to obtain balance.

Operations that result in physical improvement are usually followed by considerable mental improvement, at times to a surprising degree.

An article on the subject by Dr. Bronson Crothers appeared in the Physiotherapy Review, May to June, 1931, page 98, and another article by Paisley on page 102 in the same issue.

HEMIPLEGIA WITH SUBSEQUENT NEURITIS AND DEATH

To the Editor:—A woman, aged 65, showed the usual symptoms of a slow cerebral hemorrhage, with partial paralysis of arm and leg. Moderate improvement occurred and she was able to walk about for four or five months, but a few weeks after the hemorrhage a severe and progressive "neuritis" appeared in the arm and to a less extent in the leg. Control of the pain, even by narcotics, was difficult. The patient, who was well nourished, died six months later, after days in coma. What is the probable explanation of the severe pain in the extremities? Please omit name.

M.D., MICHIGAN.

ANSWER.—The explanation of these severe continuous pains in the paralyzed arm and leg may be the extension of hemorrhage into the thalamus, producing the so-called hyperpathia of the thalamic syndrome. This is considered to be due to a lesion of the cortical thalamic fibers, which inhibit or damp down the excessive pain sensations which are a function of the thalamus. When these fibers are destroyed, the thalamic type of sensation becomes released. It has the characteristic of being diffuse, burning or cutting in character and is associated with a marked increased reaction to normal pain stimuli. This increased reaction is characterized by extreme radiation of the pain of an all or none character; that is, when the threshold has been reached the intensity is always the same. If the thalamus itself had been destroyed there would have been in addition certain defects and painful sensations. On the other hand, the severe pain may have been nothing more than the result of adhesions, which quickly form in and around the joint in an elderly person with hemiplegia.

TREATMENT OF MUCOUS COLITIS

To the Editor:—A man, aged 28, has mucous colitis. I have recently given him calcium lactate and parathyroid therapy. I have prescribed calcium lactate, 60 grains (4 Gm.) daily and desiccated parathyroid, 1/10 grain (6 mg.) three times daily. What effects, if any, would follow the overdosage of parathyroid hormone? Is this dosage of calcium lactate and parathyroid adequate? While in the hospital the patient had a complete examination, i. e., gastro-intestinal roentgenograms, barium enema, roentgenograms of the sinuses and teeth, tonsillectomy, appendectomy, and proctoscopic examinations, with practically no benefit. No parasites or amebas were found. He profited most by the continued use (two or three times weekly) of high colonic irrigations, sometimes followed by injection of silver nitrate solution. He was also given bacillus acidophilus by mouth. What other measures could be employed to benefit him? The heart, lungs and kidneys seem normal. Please omit name.

M.D., Pennsylvania.

ANSWER.—No proof has been brought forward that definite effects can be produced by parathyroid medication taken by mouth. The dose of calcium lactate might be multiplied by four without likelihood of excessive action or untoward results. Mucous colitis, like many other chronic diseases, owes its self perpetuating tendency to vicious circles the unraveling of which may be fascinating but is difficult. There may be, for instance, a tendency to proximal colon stasis owing to colonic adhesions, kinks or redundancies, by reason of which its contents may become so irritating as to cause spasm of the distal colon, which in turn increases the stasis in the proximal colon. In other cases, the proximal colon stasis is secondary to distal colon spasm, induced by neurotic disturbance. The first thing to do in vicious circles of this kind is to unlock the distal colon spasm. This may usually be accomplished by oil enemas taken at bedtime and retained overnight. Liquid petrolatum taken in tablespoonful doses morning and evening may suffice to prevent recurrence of spasm; and some of these patients require using a certain amount of liquid petrolatum regularly for some time, at any rate as long as they consume a diet deficient in roughage, the so-called smooth diet, which may be the only kind some persons with this tendency are able to tolerate. In many cases a change to a coarse diet may be made without recurrence of spasms and the use of laxatives dispensed with, especially if the nervous factor has in the meantime been taken care of. This is attempted by nothing more nor less than instituting mental hygiene appropriate for the individual. In cases in which the anatomic factor predominates, liquid petrolatum may be insufficient to secure adequate cleanliness of the proximal colon and a course of mild saline cathartics should be instituted. The attempt should be made, however, to follow up this with the previously discussed regimen, if at all possible. There are cases in which an unwholesome colonic bacterial flora is the predominating factor. When the bacterial factor predominates, a protein and fat poor diet in putrefactive cases and a carbohydrate poor diet in fermentative cases may be an important temporary expedient. The liberal use of acidophilus milk and of "cottage cheese" is probably of especial value in some of these cases. It must also be borne in mind that there are cases of food anaphylaxis that react to certain foods by an intestinal crisis just as others do by an attack of urticaria or of asthma. These patients require the determination of the offending food by means of a series of elimination diets.

FATS CONTRAINDICATED WITH THYMOL

To the Editor:—Will you please advise me why fats are eliminated from the diet previous to the administration of thymol, and for how many days should they be eliminated previous to its administration? What is the maximum dose of thymol for an adult? Please do not use my name.

M.D., Indiana.

ANSWER.—Fats favor the absorption of thymol because of its great solubility in oil. Hence they are eliminated from the diet by omitting supper the day before, and by not permitting fats the day of the treatment.

As a rule, the 2 Gm. dose should not be exceeded, as even this produces disagreeable after-effects in quite a proportion of cases, such as burning in the epigastrium, dizziness and weakness. The maximum dose should be placed at 4 Gm. for an adult man and at 3 Gm. for a woman. Such a maximum dose, however, should not be given in anemia with even slight edema of the ankles, nor in the presence of dysentery, pregnancy, extensive edema, extreme debility, or old age.

AORTIC INSUFFICIENCY

To the Editor:—J. B., aged 16, seemingly healthy, believes he is able to work. He has a blood pressure of 170 systolic and 0 diastolic. The stethoscope over the radial artery gives a rather loud sound. What condition in aortic regurgitation would bring about this low diastolic pressure? Treatment over one week in bed with nitrites and a milk diet gives a pressure of 160 systolic, with no change in the diastolic. Please indicate treatment.

J. F. BREMER, M.D., Minneapolis.

ANSWER.—The diastolic pressure is probably best represented by a reading taken at the beginning of the fourth phase. This will almost never give as low a reading as that given here. If the diastolic pressure is taken at the time when all sounds disappear it will frequently be at zero, a figure which, there is reason to think, is below the actual figure.

Such a picture as that given here could occur in aortic insufficiency and only occasionally in other conditions in which there is an extreme vasodilatation.

The blood pressure of itself does not demand any treatment. The underlying factors should be determined. If it is an aortic insufficiency on a rheumatic basis, and if there is no infection present at this time, no treatment is necessary in a heart that can do its daily work perfectly well. The patient should be instructed with regard to his general care, and especially with regard to doing what he can to avoid further recurrence of the infection and consequent further damage.

VINCENT'S ANGINA

To the Editor:—I wish to take exception to the answer given to the query on Vincent's Angina, in your issue of May 30, page 1895. The answer states that spirochetes and fusiform bacilli are found in normal mouths. The truth of this statement depends on the sense in which the word "normal" is used: if the average or usual adult mouth, then it is true; if a truly healthy mouth, then it is untrue. Over a period of fifteen years I have had opportunity to examine smears from many hundreds of young adult mouths (students of ages 18-25). Most of these smears did not show spirochetes. In every case in which spirochetes were demonstrable there was found something clinically wrong which could explain their presence.

Vincent's organisms are frequently found in mouths, persisting after a Vincent infection has clinically yielded to treatment. Recurrence is likely to occur if treatment is stopped at this stage. It is always desirable to continue treatment until the smears are negative for Vincent's organisms. This objective is not visionary or academic. If persistence is unduly prolonged, it means that some local pathologic state or irritation, often quite trivial, has been overlooked or neglected.

J. L. T. APPLETON, JR., D.D.S., Philadelphia,
Professor of Bacteriopathology, University of Pennsylvania School of Dentistry.

Council on Medical Education and Hospitals

COMING EXAMINATIONS

AMERICAN BOARD FOR OPHTHALMIC EXAMINATIONS: Indianapolis, Sept. 12. Sec., Dr. Wm. H. Wilder, 122 South Michigan Ave., Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY: Indianapolis, Sept. 12. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha, Neb.

ARIZONA: Phoenix, Oct. 6-7. Sec., Dr. B. M. Berger, 12 N. Central Ave., Phoenix.

CALIFORNIA: *Reciprocity.* Los Angeles and San Francisco, Sept. 18. *Regular.* Sacramento, Oct. 19-22. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

COLORADO: Denver, Oct. 6. Sec., Dr. Wm. Whitridge Williams, 422 State Office Bldg., Denver.

CONNECTICUT: *Basic Science.* New Haven, Oct. 10. Address, State Board of Healing Arts, 1895 Yale Station, New Haven.

IDAHO: Boise, Oct. 6. Commissioner, Hon. Emmitt Pfost, Boise.

ILLINOIS: Chicago, Oct. 13-15. Supt., Mr. Paul B. Johnson, Springfield.

MICHIGAN: Lansing, Oct. 13-15. Sec., Dr. F. C. Warnshuis, 1010 Maccabee Bldg., Detroit.

MINNESOTA: *Basic Science.* Minneapolis, Oct. 6-7. Sec., Dr. J. C. McKinley, 126 Millard Hall, Minneapolis. *Regular.* Minneapolis, Oct. 20-22. Sec., Dr. E. J. Engberg, 524 Lowry Bldg., St. Paul.

MONTANA: Helena, Oct 6. Sec., Dr. S. A. Cooney, Power Block, Helena.

NATIONAL BOARD OF MEDICAL EXAMINERS: The examinations will be held at various cities throughout the country where five or more candidates are enrolled, Sept. 14-16. Ex. Sec., Mr. Everett S. Elwood, 225 South 15th St., Philadelphia.

NEBRASKA: *Basic Science.* Lincoln, Oct. 6-7. Acting Sec., Mr. P. H. Bartholomew, Lincoln.

NEW HAMPSHIRE: Concord, Sept. 10-11. Sec., Dr. Charles Duncan, Concord.

NEW JERSEY: Trenton, Oct. 20-21. Sec., Dr. James J. McGuire, 1101 Trenton Trust Bldg., Trenton.

NEW MEXICO: Santa Fe, Oct. 12-13. Sec., Dr. P. G. Cornish, Jr., 221 W. Central Ave., Albuquerque.

NEW YORK: Albany, Buffalo, New York and Syracuse, Sept. 28 to Oct. 1. Chief, Mr. H. J. Hamilton, Room 315, State Education Bldg., Albany.

RHODE ISLAND: Providence, Oct. 1-2. Dir., Dr. Lester A. Round, 319 State Office Building, Providence.

WISCONSIN: *Basic Science.* Madison, Sept. 19. Sec., Prof. Robert N. Bauer, 3414 W. Wisconsin Ave., Milwaukee. *Regular, Reciprocity.* Milwaukee, Oct. 21. Sec., Dr. Robert E. Flynn, 315 State Bank Bldg., La Crosse.

WYOMING: Cheyenne, Oct. 5. Sec., Dr. W. H. Hassed, Capitol Bldg., Cheyenne.

Maryland Homeopathic June Examination

Dr. John A. Evans, secretary, Maryland Board of Homeopathic Medical Examiners, reports the written examination held at Baltimore, June 16-17, 1931. The examination covered 7 subjects and included 70 questions. An average of 70 per cent was required to pass. Three candidates were examined, all of whom passed. The following college was represented:

PASSED			
College		Year Grad.	Per Cent
Hahnemann Medical Coll. and Hosp. of Philadelphia		(1931)	87, 87, 87

Kansas June Report

Dr. E. H. Ewing, secretary, Kansas State Board of Medical Registration and Examination, reports the written examination held at Topeka, June 16-17, 1931. The examination covered 10 subjects and included 100 questions. An average of 75 per cent was required to pass. Sixty-seven candidates were examined, all of whom passed. Twenty-two physicians were licensed by reciprocity with other states. The following colleges were represented:

PASSED			
College		Year Grad.	Per Cent
Northwestern University Medical School		(1931)	87.7, 89.1, 90.2
University of Kansas School of Medicine		(1931)	76.1, 80.3, 81.3, 83.4, 85.6, 86, 86.5, 86.6, 87, 87.1, 87.1, 87.4, 87.7, 87.8, 87.8, 87.8, 87.9, 87.9, 88, 88.2, 88.4, 88.4, 88.5, 88.7, 88.8, 88.8, 88.9, 89, 89.1, 89.2, 89.3, 89.4, 89.4, 89.4, 89.5, 89.5, 89.6, 89.6, 89.6, 89.7, 89.9, 89.9, 90.2, 90.5, 90.8, 90.9, 91, 91.1, 91.6, 93.3
Tufts College Medical School		(1930)	88.3
Washington University School of Medicine		(1931)	93.4
Creighton University School of Medicine		(1931)	85.8, 86.1, 88.6, 88.7, 89.1
University of Nebraska College of Medicine		(1931)	87, 87.7
Meharry Medical College		(1930)	83.8, 87
University of Tennessee College of Medicine		(1931)	88.7
Marquette University School of Medicine		(1931)	88.2
University of Wisconsin Medical School		(1929)	87.5

LICENSED BY RECIPROCITY			
College		Year Grad.	Reciprocity with
University of Arkansas School of Medicine		(1914)	Arkansas
Loyola University School of Medicine		(1916)	Illinois
Northwestern University Med. School	(1930)	Texas, (1931)	Illinois
State University of Iowa College of Medicine		(1927)	Iowa
Harvard University Medical School		(1927)	Michigan
Detroit College of Medicine		(1912)	Michigan
Missouri Medical College		(1884)	Missouri
St. Louis University School of Medicine		(1929)	Missouri
Washington University School of Medicine		(1928)	Missouri
University Medical College of Kansas City, Mo.		(1908)	Missouri
Creighton University School of Medicine	(1927),	(1930)	Nebraska
John A. Creighton Medical College		(1906)	Nebraska
Medical Department of Omaha University		(1900)	Nebraska
University of Nebraska Coll. of Med.	(1927),	(1929), (1930)	Nebraska
Ohio State University College of Medicine		(1928)	Ohio
University of Cincinnati College of Medicine		(1924)	Ohio
University of Texas School of Medicine		(1930)	Texas
University of Wisconsin Medical School		(1927)	Wisconsin

Vermont June Examination

Dr. W. Scott Nay, secretary, Vermont State Board of Medical Registration, reports the written examination held at Burlington, June 17-19, 1931. The examination covered 12 subjects and included 90 questions. An average of 75 per cent was required to pass. Sixteen candidates were examined, all of whom passed. The following colleges were represented:

PASSED			
College		Year Grad.	Number Passed
Harvard University Medical School		(1931)	1
University of Vermont College of Med.	(1930, 2),	(1931, 12)	14
McGill University Faculty of Medicine		(1927)	1

Book Notices

PRACTICAL ANÆSTHETICS FOR THE STUDENT AND GENERAL PRACTITIONER. By Charles F. Hadfield, M.B.E., M.A., M.D., Sen. Hon. Anæsthetist, Prince of Wales's Hospital. Second edition. Cloth. Price, $3.50. Pp. 336, with 41 illustrations. New York: William Wood & Company, 1931.

This is a relatively short book, written in large, easily legible print, intended primarily for use by medical and dental students in conjunction with practical instruction, and for the general practitioner to use in refreshing his knowledge of the subject. The anesthetic agents at present in use are mentioned, and short descriptions of their methods of administration are included. More detailed descriptions are given of the methods found satisfactory by the author for the majority of operations. It is noted, however, that he has purposely omitted description of the barbiturates. There is a brief enumeration of the equipment required by a person who expects to do a moderate amount of anesthesia in conjunction with a general practice. With one exception the simpler and less expensive forms of apparatus are described, but in the majority of instances the apparatus is that commonly used in Great Britain and not easily procurable in this country. Adequate space is given to a description of the signs and stages as seen in all forms of general anesthesia, and the author is careful to stress the necessity of always maintaining an open airway. He then proceeds to describe each of the more commonly employed and important anesthetic agents in more or less detail, giving minute instructions as to the methods of administration, the apparatus required, and the signs, symptoms and dangers, especially in regard to nitrous oxide, ether and chloroform. He discusses briefly their respective advantages and disadvantages but gives little space to their chemistry, physical properties and physiologic action, except in the case of chloroform, of which he explains the dangers as compared to other agents in general use, stressing the narrow margin of safety and also the dangers of light chloroform anesthesia. Ether is given the most space, and descriptions of all methods of its administration, including rectal, intravenous and intratracheal, are given; the merits of each method are discussed.

Much briefer consideration is given to other agents which are not so generally used, such as A. C. E. and similar mixtures, ethyl chloride, and the unsaturated hydrocarbons. In this connection, limited space is given to the valuable agent ethylene. "Avertin" is mentioned and a table of dosage appended. The author devotes considerable space to the preparation of the patient and to the advantages, in this connection, of various hypnotic and analgesic drugs used preliminary to the anesthetic. He stresses the value of atropine preliminary to the use of ether. Local anesthesia is considered, but little space is given to the actual technic, especially of regional anesthesia, in which connection, with two exceptions, no attempt is made to describe

the various technics required in different situations. Spinal anesthesia is discussed at moderate length. Splanchnic analgesia is also described, but the author points out that this procedure should not be undertaken without adequate preliminary practice on the cadaver. Most of the more common agents used in local and regional anesthesia are mentioned, with short comments on their respective merits and the claims made for them. Considerable space is given to anesthesia in dental surgery; both general and local methods are described in detail. In fact, the chapters in this department are among the most valuable in the book. The work is concluded with a discussion of the choice of anesthetic agents to be used in special cases; that is, in certain special diseases and operations, and in working with children. Finally, the author considers the complications occasionally seen incident to the anesthetic and the more common anesthetic emergencies together with methods of meeting them.

ATTI DEL SECONDO CONVEGNO NAZIONALE, DELLA LEGA ITALIANA PER LA LOTTA CONTRO IL CANCRO. BOLOGNA 4-5 GENNAIO 1931. Sotto l'alto patronato di S. M. la Regina. Pubblicati a cura del comitato ordinatore. Paper. Price, 50 lire. Pp. 508, with illustrations. Bologna: L. Cappelli, 1931.

This report is a well printed volume with some fine colored illustrations. In the first part are the usual addresses of welcome, lists of officers and members, and similar information common to all congresses. Then follows a series of symposiums. The first is on modern views of tumor etiology by Professor Rondoni; the next on cancer and tuberculosis by Professor Centanni; the third, the problem of constitutional susceptibility to cancer by Professor Benedetti; the fourth, a summary of the oncological imbalance and tissue chemotherapy in the biology of tumors by Professor Fichera; the fifth, a report by Professor Gallenga on the present organization and activities of the diagnostic and therapeutic cancer centers in Italy. The papers all have good bibliographies. The remainder of the volume is devoted to shorter reports on many phases of cancer, including the results of experimental investigations on animals, records of interesting types of tumors, discussions of various forms of therapy, statistical observations on the occurrence of cancer in certain localities, and reports on cancer clinics. The whole offers an excellent survey of the activities of Italian physicians in the field of cancer.

THE FUNDAMENTAL PRINCIPLES OF ALVEOLO-DENTAL RADIOLOGY. A Text-Book Dealing with the Technics of Taking Radiographs of the Teeth and Osseous Tissues of the Human Jaws, with an Analytical Treatise on Their Interpretation as a Basis of Diagnosis of Oral Lesions. By Joseph Andrea Pollia, M.D., Senior Attending Physician and Instructor of Internes, Los Angeles General Hospital. Cloth. Price, $8. Pp. 543, with 774 illustrations. Brooklyn: Dental Items of Interest Publishing Company, Inc., 1930.

Dr. Pollia has been for many years one of the leading students of radiology in the dental field on the Pacific Coast. This book contains forty-two chapters, which include a general discussion of x-rays and the apparatus used, the principles and details of technic, the alveolodental structures, the roentgenographic anatomy, of the maxillae, mandible and teeth, changes in the bony structures due to hyperplasia, atrophy, cysts, alveolar-dental tumors, and the use of roentgenography in preventive dentistry. Emphasis is placed on the fact that the majority of teeth are extracted on roentgenographic evidence alone; it is also pointed out that a high percentage of roentgenograms of the jaws are not well enough made to show definitely the condition that exists, and there are too many errors in diagnosis. Dr. Pollia feels that there should be much improvement in both the making and the interpretation of oral films and he points out many sources of error and the means of correcting them. The various pathologic conditions of the jaws are beautifully illustrated. For many, both good and poor films are shown, attention being called to errors in roentgenographic technic. All through there is evidence of Dr. Pollia's effort to interest roentgenographic operators in a better knowledge of pathologic changes which involve the bony tissues. The chapter that might be criticized is the one on radiography in preventive dentistry. After pointing out the value of the x-rays in early diagnosis of dental caries, particularly in positions of difficult access with exploring instruments, the author's discussion of the pathologic changes of the hard structures of the teeth shows lack of knowledge. He refers, for example, to erosion as a "process of absorption, which begins at the junction of the crown and root," when it is well known that this is not an absorption and usually begins in the enamel at least a few millimeters from the junction with the root. This chapter is lacking in illustrations showing dental caries. The book is one of the best on this subject, although proper collaboration with a good oral pathologist would have made it more clearly understandable by the dentist.

WISSENSCHAFTLICHE FORSCHUNGSBERICHTE: NATURWISSENSCHAFTLICHE REIHE. Herausgegeben von Dr. Raphael Ed. Liesegang. Band XXV: Pharmakologie in ihren modernen Problemstellungen: Eine Ergänzung zu den Lehrbüchern. Von Dr. Hans Handovsky, a. o. Professor der Pharmakologie an der Universität Göttingen. Paper. Price, 17.50 marks. Pp. 224. Dresden: Theodor Steinkopff, 1931.

The voluminous literature on biology and its related sciences from 1914 to 1929 has been evaluated by Handovsky in an attempt to outline briefly the chief points of view and the chief methods of attack of problems that have characterized pharmacology during this period. In the introduction he discusses what is properly the domain of pharmacology. The first and longest chapter deals with all aspects of metabolism, including the mechanism of intracellular oxidations and the pharmacology of heat regulation and oxygen transport. Other chapters similarly treat the colloidal structure of the cell, water and salt metabolism and, more briefly, new developments in the older pharmacology of the central and peripheral nervous systems, skeletal muscle, digestive tract, and glands of internal secretion. The text cites more than 1,600 references, which are collected at the end of the volume. Unfortunately, they are not arranged alphabetically. There is also an index.

THE SIGNIFICANCE OF WATERBORNE TYPHOID FEVER OUTBREAKS, 1920-1930. By Abel Wolman and Arthur E. Gorman. With a foreword by Thomas Parran, Jr., M.D., Commissioner of Health, State of New York. Cloth. Price, $2. Pp. 82, with 7 illustrations. Baltimore: Williams & Wilkins Company, 1931.

This little book draws attention to the continued significance of water-borne typhoid. In spite of the enormous strides that have been taken in water purification through the application of proper large scale filtration methods and especially through chlorination, it is a discouraging fact that there still occur a number of disastrous typhoid epidemics traceable to water. As the authors clearly demonstrate, the greater part of these are due either to some breakdown in the purifying process or to faulty installations. Among the latter the deadly cross connection looms largest. THE JOURNAL has frequently commented on the inexcusable practice of connecting pipes carrying polluted river water with the pipes of a municipal supply and expecting all valves and other safety devices to function properly over an indefinite period. The acute danger from this source is emphasized by the authors, and they back their opinion with numerous concrete examples. The style of the book is so forceful and the evidence so convincing that the book should do much toward reducing the menace from typhoid contracted through drinking water.

ERGEBNISSE DER MEDIZINISCHEN STRAHLENFORSCHUNG (RÖNTGENDIAGNOSTIK, RÖNTGEN-, RADIUM-, UND LICHTTHERAPIE). Band V. Herausgegeben von H. Holfelder, H. Holthusen, O. Jüngling, H. Martius und H. R. Schinz. Paper. Price, 72 marks. Pp. 675, with 396 illustrations. Leipzig: Georg Thieme, 1931.

The first article deals with the photographic study of the so-called cascade stomach, the unilateral excessive dilatation of the stomach as a rule occurring in a distal direction. If such deformity is combined with hyperacidity of the stomachic contents, an organic disorder, probably stomachic ulcer, may be surmised. The combination of these symptoms militates against the diagnosis of cancer. The second chapter contains the reports on experimental roentgenologic studies of the smaller intestines. The following article deals with the chemotactic phenomena produced by light and roentgen rays. The chapter on the genetic influence on living structures produced by raying is highly technical. W. Baensch reports on the roentgen therapy of tumors of the hypophysis. The secondary systemic changes, the careful study of the roentgenogram and examination of the ocular background will in most instances permit of a reasonably exact diagnosis. In case the vision is progressively interfered with or if total blindness has to be expected, surgery is to be preferred to roentgen therapy. The irradiating should be done

through three or four ports of entrance. While radiotherapy in some instances furnishes decided subjective relief, as a rule it does not improve the secondary systemic changes. At any rate, the operative indication should always depend on the results of tentative irradiation. Hildebrandt discusses the pathology, diagnosis and therapeutic possibilities in malignant tumors of the thyroid, comparing the results of irradiation, surgery and combined treatments. Halberstaedter and Simons deal with the radiotherapy of the cutaneous cancers. The technic described is practically identical with that practiced at the Paris Curie institute. They conclude that almost every cutaneous cancer in the early stages is curable by radiotherapy; because even in extensive cases radiotherapy often offers the only chances of cure, at present radiotherapy has to be considered as the method of choice. The authors consider this problem as a matter of proper organization. Schinz and Uehlinger furnish a survey of the pathology, diagnosis, prognosis and therapy of all the primary tumors and cysts of the skeleton. The implantation of radium and radon into malignant tumors is discussed by Zwerg. The contents of this chapter follow the usual lines as laid down mainly by French and American authors. The last chapter, written by Friedrich and Schreiber, furnishes all the information available on spectroscopy.

A SYNOPSIS OF THE UNITED STATES PHARMACOPOEIA AND NATIONAL FORMULARY PREPARATIONS GIVING THE LATIN AND ENGLISH TITLES, SYNONYMS, COMPOSITION, METHOD OF PREPARATION, STRENGTH AND DOSES. By H. J. Fuller, Ph.C., Phm.B., Assistant Professor of Pharmacy, the Connecticut College of Pharmacy, New Haven. Cloth. Price, $2. Pp. 247. Philadelphia: P. Blakiston's Son & Company, Inc., 1931.

This is a treatise on the official preparations of the U. S. Pharmacopeia X and the National Formulary V in a concise form, giving such essentials as the Latin and English titles, synonyms, composition, method of preparation, strength and doses. The book is primarily divided into three parts: first, a section devoted to general information, such as definitions of pharmaceutic processes; second, an alphabetical arrangement of the various drugs, chemicals and their preparations of the Pharmacopeia and National Formulary, respectively; third, general principles that determine their dosage and tables of doses. The volume is well indexed. It is not a remarkable book but is a sensible compend to the students of pharmacy, as well as an informative booklet to the students of medicine who desire a condensed pharmaceutic summary of official preparations.

LES TROUBLES FONCTIONNELS DE L'APPAREIL GÉNITAL DE LA FEMME: ÉTUDE PHYSIOLOGIQUE, CLINIQUE ET THÉRAPEUTIQUE. Par Gaston Cotte, professeur agrégé à la Faculté de médecine de Lyon. Second edition. Cloth. Price, 120 francs. Pp. 798, with 199 illustrations. Paris: Masson & Cie, 1931.

This edition of Cotte's encyclopedic treatise on the functional disturbances of the female genital apparatus is much larger than the first edition. The present book contains 228 more pages and 82 more illustrations than the former one. Not only has much more material been included but the old has also been revised and corrected and the chapters have been rearranged. All the important advances that have been made in the last three years have been included in the present volume. This work is the result of thorough and diligent study. It should be in the library of every gynecologist because it contains a wealth of useful information concerning the physiology, clinical course and treatment of a large number of important gynecologic ailments. The book is well printed, the illustrations are clear and the language is delightfully simple.

THE USE OF THE MICROSCOPE: A HANDBOOK FOR ROUTINE AND RESEARCH WORK. By John Belling, Cytologist, Carnegie Institution of Washington. Cloth. Price, $4. Pp. 315, with 28 illustrations. New York: McGraw-Hill Book Company, Inc., 1930.

This guide to the use of the microscope is one of a series made up of numerous publications in the agricultural, botanic and zoological sciences. The reader is conducted through chapters beginning with hand magnifiers to others in which twin-objective binocular and monobjective binocular microscopes are considered. There are also chapters on illumination, light filters, condensers, objectives, photography, drawing, testing and care of the microscope. Occasional references are made to microscopes manufactured by particular firms, but in a totally neutral attitude. Practicing physicians, students, and investigators in medicine and other biologic sciences will find many useful suggestions in obtaining maximum efficiency from the microscopes they use. Methods are described whereby more perfect images are possible with different combinations of adjustments of the many accessories with which modern microscopes are so bountifully equipped. The author's style is crisp, simple, and satisfactorily authoritative. The book has a convenient size and, supplementing other features by which comprehensive textbooks full of practical information are recognized, the author has included a glossary and a bibliography.

A SYSTEM OF BACTERIOLOGY IN RELATION TO MEDICINE. Volume VI. By J. A. Arkwright, S. P. Bedson, and others. Medical Research Council. Cloth. Price, £1 1s. Pp. 538. London: His Majesty's Stationery Office, 1931.

Previous reviews of this system of bacteriology have pointed out its reliability, its detail, its fine presentation and its practicability. The present volume opens with a discussion of bacteria in relationship to disease and follows with considerations of every possible aspect of immunity. Thus the authors are concerned with methods of immunization with various technics, antigens, the complement fixation test, the agglutination and precipitation tests, anaphylaxis, chemistry and chemotherapy. The basic chapter in the entire book is that, no doubt, on the properties of antigens and antibodies. The literature on the subject is fully reviewed, including recent contributions in all the fields discussed. The book will serve to bring any physician who can comprehend it down to date in the field it concerns. The authors have been exceedingly careful to cover the particular phases of their discussions and knowledge of what they present to avoid some of the unfavorable results that occasionally occur in this field.

A TEXT-BOOK OF MEDICAL DISEASES FOR NURSES, INCLUDING NURSING CARE. By Arthur A. Stevens, A.M., M.D., Professor of Applied Therapeutics in the University of Pennsylvania, and Florence Anna Ambler, B.S., R.N., Supervisor of Educational Department, School of Nursing, Philadelphia General Hospital. Cloth. Price, $2.75. Pp. 503, with 9 illustrations. Philadelphia: W. B. Saunders Company, 1931.

This textbook was written to supply nurses with potential knowledge of disease and disease processes and to furnish them with instruction in nursing care and procedure in accordance with modern practice. Each disease is considered as to etiology, pathology, symptomatology, diagnosis, complications, prognosis and treatment and, in addition, nursing care. The paragraphs under nursing care are excellent and could be read with advantage by the intern and the medical student as well as by the nurse. In the appendix, the various technical nursing procedures are well described. This work will be valuable as a standard textbook for nurses.

LEHRBUCH DER GYNÄKOLOGIE. Von Prof. Dr. W. Stoeckel, Geh. Med.-Rat. Direktor der Universitäts-Frauenklinik zu Berlin. Third edition. Paper. Price, 40 marks. Pp. 742, with 466 illustrations. Leipzig: S. Hirzel, 1931.

All of Stoeckel's books are deservedly popular, and this book is no exception. The first edition was written with Reifferscheid but the second and the present editions were prepared by Stoeckel alone except for a few chapters, which were written by collaborators. The book covers the entire field of gynecology and in addition includes chapters on the female urinary tract, diseases of the breast, diseases of the abdominal wall, some intestinal ailments and diathermy. There is also a chapter on radiation therapy by F. von Mikulicz-Radecki and one on the gynecologic pharmacopeia by Stich. The chapter on gynecologic hygiene contains an interesting discussion of many problems, such as exercise, gymnastics, the hygiene of menstruation, marriage, coitus, employment during pregnancy, clothing, and the abuse of smoking. The chapter on the urinary tract, which occupies almost sixty pages, is most instructive and is one of the best in the book. This is only natural, because Stoeckel has been intensely interested in female urology throughout his career. The treatment, medical and operative, of most gynecologic conditions is that which is generally accepted. However, for the treatment of carcinoma of the cervix most gynecologists now employ radium, whereas Stoeckel performs vaginal hysterectomy. During the past eight years he has performed 400 of these operations for cervical cancer.

His primary operative mortality was 8.5 per cent, and there were 50 per cent of permanent cures. The typography of the book is excellent and the illustrations are abundant, clear and instructive. The name Stoeckel is a guarantee that this material is ably presented.

THE PHYSICIAN OF THE DANCE OF DEATH: A HISTORICAL STUDY OF THE EVOLUTION OF THE DANCE OF DEATH MYTHUS IN ART. By Aldred Scott Warthin, Ph.D., M.D., LL.D., Professor of Pathology and Director of the Pathological Laboratories in the University of Michigan, Ann Arbor. Cloth. Price, $7.50. Pp. 142, with 92 illustrations. New York: Paul B. Hoeber, Inc., 1931.

It was one of the hobbies of Dr. Aldred Scott Warthin to collect all of the books, illustrations and other material that he could find on the "dance of death." His interest began in 1893 when he saw Dürer's famous plate in a window near Nuremberg. Dr. Warthin's interest in death was philosophical and in no sense of the word morbid. His hobby gave him great pleasure, and he delighted to show his collections to visitors. Those who did not see his collections in a personally conducted tour by the author will find in this book reproductions of ninety-one of the illustrations, complete bibliography, and a discussion written in Dr. Warthin's best literary manner.

THE CONDUCT OF LIFE ASSURANCE EXAMINATIONS. By E. M. Brockbank, M.D., V.R.C.P., Honorary Consulting Physician, Royal Infirmary, Manchester. Cloth. Price, 7/6 net. Pp. 172. London: H. K. Lewis & Company, Ltd., 1931.

The author has acted as local medical referee for more than sixty life assurance companies and has examined more than 10,000 applicants. The first section deals with the filling in of reports. These should be done on the day of the examination, as delayed reports are unsatisfactory. He discusses the various types of insurance, the importance of the family history, especially pertaining to longevity and the hereditary diseases and habits of the applicant and his previous diseases. These together with the description of the examination are carried out in much the same manner as is done by any thorough physician in his office. Probably less undressing is done by the applicant for insurance, except in the unusual case in which the history warrants a more complete examination than should be done by a patient in the doctor's office. He calls attention to errors in reports in which postural murmurs of the heart are found. Granted that visceroptosis can be discovered by his method of auscultation over the stomach for scratching sounds made by his finger, what does it mean? The second section deals with impaired lives and mentions the "guiding principles which influence the Head Office officials in deciding on the value of a proposal which has some defect of sufficient importance to affect the prospects of life." It is interesting to note that the most recent experiences of British offices show a life expectancy of the adult only one or two years better than that of the period of 1863 to 1893. There are many references to American actuary statistics. This would seem to be a good guide to any one contemplating launching into insurance examination work.

OXIDATION-REDUCTION POTENTIALS IN BACTERIOLOGY AND BIOCHEMISTRY. By L. F. Hewitt, Ph.D., B.Sc., A.I.C., Biochemist at the Belmont Laboratories, Sutton, Surrey. With a foreword by the Medical Officer of Health. Paper. Price, 2s. Pp. 70, with 21 illustrations. Sutton, Surrey: London County Council Public Health Department, 1931.

The aim of this booklet is to provide an introduction to the subject of biologic oxidation-reduction potentials. The volume is intended to be and is as simple as the nature of the material allows. However, readers without a knowledge of physical chemistry and in addition some knowledge of calculus cannot grasp the subject. For any one about to do research in this important field, it should be valuable. The bibliography adds to the value of the book.

PHYSICIANS' MANUAL OF BIRTH CONTROL. By Antoinette F. Konikow, M.D. Cloth. Price, $4. Pp. 245, with 21 illustrations. New York: Buchholz Publishing Company, 1931.

This volume does, in a smaller way, what Cooper's excellent compilation did quite completely when first published a few years ago. It discusses various methods used in birth control, including all the chemical preparations and mechanical devices, and records the experience of a clinic in checking the dependability of these technics.

Medicolegal

Radio Announcers Not Cappers nor Steerers

(Barron v. Board of Dental Examiners of California (Calif.), 293 P. 144)

The California Board of Dental Examiners suspended the licenses of the respondent dentists for employing certain persons as cappers and steerers to obtain business for them. The superior court, Alameda County, annulled the orders of suspension, and the board thereupon appealed to the district court of appeal, first district, division 1, California. There the judgment of the superior court was affirmed.

To substantiate the charge made against the dentists, it was alleged, and apparently proved, that the dentists caused to be broadcasted, for a consideration, the following announcement:

> You are now to be entertained with a program sponsored by Doctors Barron and Wilkinson, those gentle dentists. Their office is at Seventeenth and Broadway, opposite the Oakland post office. The entrance is No. 455 Seventeenth street. Doctors Barron and Wilkinson are specialists of the highest degree in the dental profession. Dr. Barron is a plate specialist and guarantees a perfect fit. He does all the work himself. You will be agreeably surprised at their prices. These gentle dentists are celebrating their first anniversary, having opened their office on May 8th, a year ago. They now have 1400 satisfied patients. Their telephone is Oakland 1819. Telephone for an appointment. Open evenings until eight.

A provision in the dental practice act defines advertising under any false, assumed or fictitious name or in any name other than the name under which the dentist was licensed as unprofessional conduct. Otherwise there is no law in California prohibiting advertising by a licensed dentist. The board urged, however, that the radio advertising indulged in constituted the employment of cappers or steerers within the meaning of section 13 of the dental practice act, for which a dentist's license may be revoked or suspended. A "capper" said the court, has been defined as a decoy or lure for the purpose of swindling. A "steerer" has been held to be one who gains the confidence of the person intended to be fleeced and who may be said to steer or lead the victim to the place where the latter is to be robbed or swindled. It is not contended, the court said, that any of the statements contained in the radio announcements were untrue. Whatever abuse the legislature intended to correct by the provision in the dental act relating to the employment of steerers and cappers, it is clear that truthful advertising, whether by newspaper or by radio, cannot by any reasonable construction be brought within its inhibitory provisions. It is well settled that where a board is granted the power to revoke a license for certain reasons set forth in the statute, it may not be revoked for any other or different reasons not clearly within the provisions of the law or by implication included therein.

Insurance, Trauma and Death Due to Screw Worms

(North American Acc. Ass'n v. Adams (Texas), 32 S. W. (2d) 525)

Adams, a farmer, was holding the bridle reins of a fractious horse while a railroad train passed. The reins broke and Adams fell to the ground. He was taken immediately to his home, not more than a mile away, in a dazed but not unconscious condition. Blood was running from his nose and mouth, and there was a bruise on his right arm, which he attributed to a kick by the horse. He went about his duties on the farm, however, although not feeling well, for about two weeks. Then he complained of his nose and sneezed a great deal. After he had suffered for two or three days with his nose, a physician was called. Medicine was prescribed, but the pain continued. Eighteen days after the accident, the physician was shown a worm that had come from Adams' head when he sneezed. The physician immediately investigated the matter and took over a hundred full-grown screw worms from the upper nasal cavities and the roof of the mouth. The attending physician attributed Adams' death to the screw worms, but the published decision of the court does not show the date when death occurred. Adams' widow, under an accident insurance policy on his life, sued the insurer, attributing his death to the accident. Judgment was rendered in her favor. On appeal, however, the Court of Civil Appeals of Texas, San Antonio, reversed the judgment and remanded the cause.

Veterinarians testified that the eggs of "the green fly" are usually deposited on wounds or abrasions of the skin and possibly on delicate tissues, such as the inside of the nose or mouth, and incubate in from nine to twenty-four hours after being deposited. The screw worms reach maturity in ten days and then drop to the earth from the place where they have grown. They are then transformed into flies, and the females deposit their eggs, as stated, thus completing the life cycle of the insect. The evidence showed the presence of blood on Adams' nose and mouth on the day of the accident. The presumption might be indulged, however, said the Court of Civil Appeals, that it was washed off and his nose and mouth kept free from blood by his wife, who was ministering to his needs. The evidence did not show the presence of blood or any abrasions of the skin after the day of the accident, until blood began to flow from the wounds inflicted by the screw worms. It is clear, therefore, said the court, that infestation by the worms did not arise from the blood that flowed from the nose at the time of the accident. More than two weeks had elapsed, according to the court's computations, after the accident and before the eggs of the fly were deposited. The fly could not, under the facts of the case, have deposited its eggs in the very brief time elapsing between the accident and Adams' arrival at his home. When or where the infestation took place was not shown, but it was necessarily not earlier than twenty hours before the time when the larvae developed and caused Adams to sneeze. No causal relation was shown between the accident and the attacks by the worms.

Malpractice: Res Ipsa Loquitur.—The doctrine of res ipsa loquitur is that whenever a thing which produced an injury is shown to have been under the control and management of the defendant, and the occurrence is such as in the ordinary course of events does not happen if due care has been exercised, the fact of injury itself will be deemed to afford prima facie evidence to support a recovery of damages, in the absence of any explanation by the defendant tending to show that the injury was not due to his want of care. The presumption raised by the doctrine of res ipsa loquitur is, however, not of itself evidence; it arises as a rule of evidence. When evidence is produced contrary to the antecedent presumption, the presumption vanishes entirely. In extracting a tooth a dentist cannot always produce the most favorable result, as the physical condition of the tooth itself must be reckoned with. A mishap, such as the flying of a fragment of tooth or filling into a patient's throat while the tooth is being extracted, is not of itself evidence of negligence or want of skill on the part of the dentist.—*Bollenbach v. Bloomenthal (Ill.), 173 N. E. 670.*

Evidence: Dying Declarations.—Consciousness on the part of the declarant that he is dying and is actually in extremis may be inferred not only from his statements but also from the nature of his wound and other circumstances. It is not necessary that the declarant say in so many words that he is conscious of impending death. It is sufficient if the judicial mind is convinced by legally sufficient evidence that the declarant believed he was about to die. In the present case the declarant was shot in the abdomen and the bullet perforated his intestines in fourteen places. While he lived five days, said the Court of Appeals of Kentucky, the wound was of such a character that he must have recognized its seriousness. If objection is made to the introduction of a dying declaration in evidence because parts of the declaration are conclusions and not facts, the objection must be specifically directed to that portion of the declaration which is alleged to be incompetent. An objection to the introduction of the declaration as a whole when there is contained in it both competent and incompetent testimony is not sufficient.—*Cochran v. Commonwealth (Ky.), 33 S. W. (2d) 30.*

Workmen's Compensation Acts: Malpractice by Physician; Election of Remedies.—The workmen's compensation act of North Dakota provides that when an injury or death for which compensation is payable under the act occurs under circumstances creating "in some other person than the North Dakota workmen's compensation fund" a legal liability to pay damages in respect thereto, the injured employee or his dependents may, at his or their option, either claim compensation from the fund or proceed at law against the person responsible for the injuries. If an employee is injured in the course of his employment and his injury is aggravated by the malpractice of his physician, the employee is entitled to compensation from the workmen's compensation fund for the original injury plus such aggravation. He may either claim compensation under the act or proceed at law against the physician. If, however, he obtains compensation under the act, he cannot thereafter recover damages from the physician. In such a case, the workmen's compensation fund is subrogated to the rights of the injured employee and may recover from the physician.—*Polucha v. Landes (N. D.), 233 N. W. 264.*

Evidence: Medical Books.—Opinions on medical matters or on any other subject are not admissible in evidence except by the testimony under oath of a person skilled therein. Statements contained in medical or scientific books cannot be used in evidence, and counsel may not read to the jury from such books. To permit such evidence would be to admit in evidence the statement made out of court by a person not subject to cross-examination. This rule is subject to an exception when a witness refers to a treatise as corroborating his testimony. The treatise may then be read to prove it does not show such corroboration.—*Percoco's Case (Mass.), 173 N. E. 515.*

Compensation of Physicians: Liability for Services Rendered Daughter.—The appellee was injured by the appellant's truck. At her father's request, a physician rendered necessary medical services. The fact that such services were rendered at the request of the father and that the physician charged them to the father did not relieve the daughter from liability for the value thereof. The services were rendered for her benefit and she was entitled to recover from the appellant the amount of the physician's charges.—*Ineeda Laundry v. Newton (Texas), 33 S. W. (2d) 208.*

Society Proceedings

COMING MEETINGS

American Academy of Ophthalmology and Otolaryngology, French Lick, Indiana, September 14-19. Dr. William P. Wherry, Medical Arts Building, Omaha, Executive Secretary.

American Association of Obstetricians, Gynecologists and Abdominal Surgeons, White Sulphur Springs, W. Va., September 14-16. Dr. M. A. Tate, 19 West Seventh Street, Cincinnati, Secretary.

American College of Surgeons, New York and Brooklyn, October 12-16. Dr. Franklin H. Martin, 40 East Erie St., Chicago, Director-General.

American Congress of Physical Therapy, Omaha, October 5-8. Dr. F. L. Wahrer, 22 South Center Street, Marshalltown, Iowa, Secretary.

American Public Health Association, Montreal, September 14-17. Dr. Kendall Emerson, 450 Seventh Avenue, New York, Acting Executive Secretary.

American Roentgen Ray Society, Atlantic City, September 22-25. Dr. John T. Murphy, 421 Michigan Street, Toledo, Ohio, Secretary.

Associated Anesthetists of the United States and Canada, New York, October 12-16. Dr. F. H. McMechan, 770 Westlake Road, Avon Lake, Ohio, Secretary.

Colorado State Medical Society, Colorado Springs, September 15-17. Mr. Harvey T. Sethman, Metropolitan Building, Denver, Executive Secretary.

Delaware, Medical Society of, Wilmington, October 13. Dr. W. O. La Motte, Medical Arts Building, Wilmington, Secretary.

Idaho State Medical Association, Boise, September 29-30. Dr. Harold W. Stone, 105 North Eighth Street, Boise, Secretary.

Indiana State Medical Association, Indianapolis, September 23-25. Mr. T. A. Hendricks, 23 East Ohio Street, Indianapolis, Executive Sec'y.

Interstate Postgraduate Medical Association of North America, Milwaukee, October 19-23. Dr. W. B. Peck, 12½ East Stephenson Street, Freeport, Ill., Managing Director.

Kansas City Southwest Clinical Society, Kansas City, Mo., October 5-10. Dr. Joseph E. Welker, 906 Grand Avenue, Kansas City, Mo., Secretary.

Kentucky State Medical Association, Lexington, September 7-10. Dr. Arthur T. McCormack, 532 West Main Street, Louisville, Secretary.

Michigan State Medical Society, Pontiac, September 22-24. Dr. F. C. Warnshuis, 148 Monroe Avenue, Grand Rapids, Secretary.

Nevada State Medical Association, Ely, September 18-19. Dr. H. J. Brown, 120 North Virginia Street, Reno, Secretary.

Oregon State Medical Society, Eugene, October 22-24. Dr. F. D. Stricker, Oregon Building, Portland, Secretary.

Pennsylvania, Medical Society of the State of, Scranton, October 5-8. Dr. Walter F. Donaldson, 500 Penn Avenue, Pittsburgh, Secretary.

Utah State Medical Association, Salt Lake City, September 9-11. Dr. M. M. Critchlow, Boston Building, Salt Lake City, Secretary.

Vermont State Medical Society, Rutland, October 8-9. Dr. William G. Ricker, 31 Main Street, St. Johnsbury, Secretary.

Virginia, Medical Society of, Roanoke, October 6-8. Miss Agnes V. Edwards, 104½ West Grace Street, Richmond, Secretary.

Wisconsin, State Medical Society of, Madison, September 9-11. Mr. J. G. Crownhart, 119 East Washington Avenue, Madison, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

41: 1265-1518 (June) 1931

*Treatment of Acute Cerebral Complication of "Nephritis." C. A. Aldrich, Winnetka, Ill.—p. 1265.
*Effect of Thyroid Therapy on Underdeveloped Children. Anne Topper, New York.—p. 1289.
*Moro Reflex as Diagnostic Aid in Fracture of Clavicle in the New-Born Infant. H. N. Sanford, Chicago.—p. 1304.
*Frame to Be Used in Treatment of Infants. A. Laird, Pittsburgh.—p. 1307.
*Nonrachitic Soft Chest and Flat Head: A New Syndrome. A. F. Hess, New York.—p. 1309.
*Asymmetry of Head and Face in Infants and in Children. D. Greene, New York.—p. 1317.
*Whooping Cough: Blood Picture, with Especial Reference to Early Observations. L. W. Sauer and L. Hambrecht, Evanston, Ill.—p. 1327.
Respiratory Metabolism in Infancy and in Childhood: XII. Biometric Study of Basal Metabolism in Normal Infants. S. Z. Levine and Eleanor Marples, New York.—p. 1332.
Preparation of Solution of Sodium Bicarbonate and Sodium Chloride for Hypodermoclysis. R. D. M. Cunningham and D. C. Darrow, New Haven, Conn.—p. 1347.
*Effect of Ultraviolet Irradiation on Antiscorbutic Vitamin of Liquid and of Dry Milk. G. C. Supplee and Odessa D. Dow, Bainbridge, N. Y.—p. 1353.
Causes of Death and Incidence of Disease in Children: One Thousand Consecutive Necropsies. I. M. Epstein, Chicago.—p. 1363.
*Buffer Values of Foods. I. N. Kugelmass and Ethyl Greenwald, New York.—p. 1377.

Cerebral Complication of "Nephritis."—Aldrich presents the clinical records of twenty-eight patients who showed cerebral symptoms in the course of hemorrhagic types of nephritis. An attempt is made to explain the behavior of these patients on the following hypothesis: Owing to an intoxication that is probably the cause of the nephritis, the tissues, including those of the brain, take on water and become edematous. This water is considered to be held in chemical combination with the tissue cells. The resulting edema of the brain causes increased intracranial pressure, a compensatory rise in blood pressure and clinical symptoms. The general increased affinity of the tissue cells for water results in oliguria and usually in subcutaneous edema. When large amounts of fluid are given, there is a tendency to dilute the toxins and to provide free water for their elimination through the kidneys. Thus, paradoxically, the administration of water may reduce edema. In this process, when the cerebral edema is decreased, the intracranial pressure and the systemic blood pressure fall, giving relief from the cerebral symptoms. Following this, as more water becomes available for excretion, diuresis takes place. When the onset of coma makes the adequate administration of fluid impossible, intravenous injections of strongly dehydrating salts, such as magnesium sulphate, shrink the cerebral tissues, leading to prompt relief from the symptoms and enabling one to proceed with the administration of fluids by mouth. The administration of magnesium sulphate by mouth in large doses seemed to hasten recovery and did not cause loose stools in edematous patients until the symptoms had disappeared. It is believed that when given orally the salt acts in the same manner as when given venously.

Thyroid Therapy.—Topper studied the effect of thyroid therapy on sixteen children. There were no obvious defects in the functioning of the thyroid, but the children were selected because of some retardation in mental or physical development in which thyroid therapy might be of value. In four children with subnormal basal metabolism, thyroid extract in small doses promptly increased the rate. In twelve children with an initially normal basal metabolic rate, thyroid extract in identical doses over a fairly long period did not increase the rate. All the children showed an increase in height during the period of treatment that was well over the normal expected increase for their age. The greatest increase in height was demonstrated in the children between 11 and 14 years of age, the period of puberty, when the impulse to grow is at its height. Development was also manifested in dentition and in the development of bone, as seen in roentgenograms of the wrists in several cases. Since thyroid extract does not seem to affect the basal metabolism of children with a normal basal metabolic rate, the stimulative effect on their growth and development leads the author to believe that the basal metabolism should not be the only criterion of thyroid therapy. The difference in action of thyroid extract on growing children and on adults makes one believe that thyroid, a metabolic catalyst, increases the phase of metabolism that is dominant in the individual person—anabolic processes or growth and development processes in the child and catabolic or oxidative processes in the adult, whose growth and development processes are complete. This stimulative effect on the growth processes in childhood is best seen at the time of puberty, when the impulse to grow is at its height. The question of the effect of thyroid extract during the first year of life, another period of great impulse to grow, is at present being studied by the author. During the middle years of childhood, the stimulative effect of thyroid extract, although present, is not so great. These observations are in accord with Kendall's opinion that thyroxine speeds metabolism in the direction in which it is going. They explain the different results of the action of thyroid extract on young and on older experimental animals. They also explain the paradoxical retention of nitrogen in the cretin and the fact that toxic goiter induced by iodides (which exert their metabolic influence through the thyroid), while common in adults, is rare before puberty.

Fracture of Clavicle in the New-Born Infant.—Sanford calls attention to the fact that fracture of the clavicle in the new-born infant is the most frequent fracture occurring during delivery. Statistics show that this fracture occurs in 1 per cent of all births. It may result from manipulation during delivery, but it is by no means rare in spontaneous birth, especially when the mother is a multipara. Nothing may attract the attention to the defect, as the infant uses the arm on the affected side without apparent discomfort. At first, crepitation is easily obtained, and there may be slight swelling at the point of fracture. By the end of the second week, the formation of callus becomes prominent enough to be noticed, and it is embarrassing to attempt to explain to the mother why this condition was not diagnosed previously. In 465 new-born infants observed by the author, six cases of fracture of the clavicle occurred. This was the only condition in which the Moro reflex was asymmetrical, no reflex being obtained on the side of the fracture.

Frame Used in Treatment of Infants.—Laird states that under even the best conditions it is difficult to administer intravenous medication to infants, because of their restlessness. He describes a frame that was planned and made in order to speed the work and to ease the administering of treatment. The frame is made from white pine, 1½ by ½ inches, arranged with interlocking joints. It has a baked enamel finish to facilitate cleaning. The edges are beveled to avoid cutting the skin of the infant. Padding is not used, since it becomes soiled and requires much changing. A strip of gauze bandage is sufficient to tie the infant on the frame. Permanent straps become soiled and are not easily adaptable to infants of various sizes. For intravenous injections into the internal saphenous vein at the ankle, the baby is placed face up on the frame and the foot is everted. The foot is held securely by adhesive tape 1 foot long applied as a figure 8. This eliminates the observation caused by a hand holding the foot. The knee of the leg in which the intravenous treatment is to be given is bound down for further stabilization. The opposite foot is tied with a gauze bandage, and all chance of that foot disturbing the sterile field is eleminated. The same attachment is used for transfusion. Ordinarily, two nurses are required to give fluids interstitially to one infant. With the frame, two nurses can give the treatment more satisfactorily, with no danger of the child rolling off the table or interfering with the treatment. For subcutaneous therapy and similar treatments, the infant is placed on the frame face up, and all four

extremities are tied down with gauze bandage. Needling the internal jugular vein is made quite a simple procedure when the child is bound on the frame. Intravenous injections in the arm and the injection of tuberculins can also be done with little loss of time and effort.

Soft Chest and Flat Head.—Hess reports the results of further study of the clinical condition previously termed by him "nonrachitic softening of the ribs." He has found that this abnormal softening results in the sinking or flattening of the wall of the chest, which is a frequent occurrence in children and which may persist into adult life. In association with this pathologic condition of the thorax, a pronounced flattening of the occiput was often noted. This malformation is due to pressure and may persist for many years. Bowing of the legs and flat foot are sometimes associated with these deformities. These lesions of the bones are not of rachitic origin. In the cases to which he refers there were none of the typical signs of rickets; at all times the roentgenographic picture did not show any abnormality, and examination of the blood showed that the phosphorus and calcium concentrations were normal. Microscopic examination did not show rickets at the costochondral junctions in two cases in which postmortem examinations could be made. Furthermore, the softening of the chest did not respond to any of the specific antirachitic agents or to the established vitamins. The syndrome (flat head and soft chest) does not belong in the category of rickets and should be differentiated from this disorder. It is a form of osteoporosis that may be of congenital origin.

Asymmetry of Head and Face.—According to Greene, asymmetry of the occipital region is a common condition in infancy. This asymmetry is found to be accompanied by an associated asymmetry of the face, leading to an increased height of the cheek bone and a difference in the level of the ears. At times it results also in an irregularity of the dental arches and a lateral deviation of the nose. Although this condition may result from rickets, it is more frequently the result of a nonrachitic condition, an osteoporosis of the bones. The softening of the bones of the head is part of a symptom complex that includes softening of the ribs and of some of the long bones of the body. The deformity of the occiput is due to almost constant pressure on the osteoporotic bones resulting from the posture of the infant. This asymmetry of the head and face can be corrected in the early months of life by merely so changing the posture of the infant that the pressure falls on the opposite side of the head. This preventive measure is worth while, as the deformity frequently persists into childhood and in some cases is permanent.

Whooping Cough.—Sauer and Hambrecht found that the blood picture is seldom an aid in the early diagnosis of whooping cough. Initial leukopenia and terminal leukopenia are probably integral parts of the blood picture in pertussis. Leukocytosis and lymphocytosis are usually present when the paroxysmal stage is well established.

Ultraviolet Irradiation of Milk.—Supplee and Dow report that ultraviolet irradiation of milk in liquid form, as a thin film for a few seconds and under conditions that imparted to it marked antirachitic properties, caused a slight but definitely measurable destruction of the antiscorbutic vitamin. This degree of destruction, under the conditions prevailing in these experiments, is probably of no greater consequence from the nutritive standpoint than the inherent variations in the vitamin C content of nonirradiated fluid milk. Dry milk irradiated by ultraviolet rays for periods of three and twenty minutes and under conditions that imparted to it marked antirachitic properties showed no evidence of the destruction of vitamin C due to such irradiation.

Buffer Values of Foods.—Kugelmass and Greenwald believe that the diminution of the buffer value in modified milk has contributed greatly to the alleviation of alimentary complication in the course of disease. Cow's milk, however, is not the only nutrient that must necessarily be utilized in the feeding of infants and children during illness. The recent tendencies of introducing semisolid foods relatively early in their nutritional careers necessitates the determination of the buffer values of foods other than milk. The feeding of foods of low buffer value has been effective in conditions in which the gastric p_H is relatively high—malnutrition and infections and deficiency diseases. The authors therefore determined the buffer values of food to be applied to the feeding of infants and children. They found that cereals, fruits and vegetables have low buffer values in comparison with milk, eggs and meats and that cooked and processed foods have lower buffer values than raw foods.

American Journal of Pathology, Boston

7: 187-325 (May) 1931

*Metastatic Tumors in Thyroid Gland. R. A. Willis, Melbourne, Australia.—p. 187.
Susceptibility of Chorio-Allantoic Membrane of Chick Embryos to Infection with Fowl-Pox Virus. Alice M. Woodruff and E. W. Goodpasture, Nashville, Tenn.—p. 209.
Spontaneous Rupture of Heart. R. F. Feemster, New Orleans.—p. 223.
Congenital Heart Disease: Persistent Ostium Atrioventriculare Commune with Septal Defects in Mongolian Idiot. G. M. Robson, Philadelphia.—p. 229.
*Specific Character of Toxic Cirrhosis as Observed in Cinchophen Poisoning: Five Fatal Cases. D. C. Beaver and H. E. Robertson, Rochester, Minn.—p. 237.
Granulomatous Abscess of Liver of Pyogenic Origin. D. C. Beaver, Rochester, Minn.—p. 259.
Erythroblastosis with Jaundice and Edema in the Newly Born. J. A. Ferguson, Boston.—p. 277.
Streptococcus Hepatitis. H. E. MacMahon and F. B. Mallory, Boston. —p. 299.

Metastatic Tumors in Thyroid.—Willis reviews forty-seven collected records of metastatic growths in the thyroid and to them adds ten personal cases. He states that secondary tumors occur more frequently in the thyroid than is generally recognized and makes a plea for more thorough pathologic examination of this organ in cases of malignant disease. There are good grounds for believing that different types of tumors possess different intrinsic capacities for establishing metastases in the thyroid and that melanoma and lung carcinoma are the most potent in this respect. There is strong evidence that adenomatous and other abnormal areas of thyroid tissue are predisposed to the establishment of metastatic neoplasms and that this predisposition depends on chemical or metabolic rather than on vascular changes in the altered tissues. In the case of neoplasms that display a maximum propensity for metastasising to the thyroid (melanoma and lung cancer), notable association of the metastases with other abnormalities of the gland are observed only infrequently. Conversely, thyroid metastases from growths of low thyroid colonizing tendency exhibit remarkably frequent association with preexisting abnormalities of the organ.

Toxic Cirrhosis in Cinchophen Poisoning.—Beaver and Robertson state that five cases of fatal toxicity from the use of preparations of cinchophen have been seen at the Mayo Clinic. These cases lend added confirmation to those previously reported, indicating that the toxic manifestation of cinchophen is principally exerted on the liver, that the lesion produced is essentially destruction of hepatic parenchyma, and that the process is pathogenically related to toxic cirrhosis. In these cases the preparations of cinchophen had been either self administered or taken without adequate medical supervision. The patients came to the clinic to seek relief from jaundice and related physical disturbances. The authors believe that unknown factors, apparently independent of the quality of the drug used, are significant in creating a predisposition or idiosyncrasy for the drug. The clinical and anatomic characteristics of toxic cirrhosis appear to be specific and essentially dissimilar to the ordinary Laënnec or portal type.

American Journal of Surgery, New York

12: 403-616 (June) 1931

*Parathyroidism. M. Ballin and P. F. Morse, Detroit.—p. 403.
Roentgenography as Aid in Obstetric Diagnosis. J. Jarcho, New York. —p. 417.
Whole Blood Transfusion. R. B. Stout, Elkhart, Ind.—p. 428.
Massive Pulmonary Collapse Complicating Pneumonia. F. S. Mainzer, Clearfield, Pa.—p. 430.
*Bacillus Fecalis Alkaligenes Meningitis. Gatewood, Chicago.—p. 435.
*Surgical Treatment of Carcinoma of Thoracic Esophagus: Case. D. H. Bessesen and A. N. Bessesen, Jr., Minneapolis.—p. 437.
Postoperative Massive Collapse of Lung: Case. F. B. Doyle, Brooklyn. —p. 443.
Traumatic Rupture of Corpora Cavernosa: Case. S. J. Sinkoe, Atlanta. —p. 446.
Tunneling Method of Spinal Fixation. S. A. Grantham, Joplin, Mo. —p. 448.
*Observations on Inguinal Hernia. C. F. Thompson and J. V. Reed, Indianapolis.—p. 458.

Abnormalities in Shape and Position of Duodenum. E. L. Kellogg, New York.—p. 462
New Treatment for Peptic Ulcer. G. P. Pitkin, Hackensack, N. J. —p. 466.
Recurrent Torsion of Spermatic Cord. J. K. Ormond, Detroit.—p. 479.
Annular Pancreas Associated with Peptic Ulcer. O. A. Brines, Detroit. —p. 483.
Removal of Pedunculated Growths of Sigmoid and Upper Rectum. A. A. Landsman, New York.—p. 485.
"Chims" (Copper Needles) as Therapeutic Measure. A. G. Anderson, Pyengyang, Korea.—p. 487.
Vascular Diseases of Extremities: IV. Thrombo-Angiitis Obliterans. A. M. Graves, New Orleans.—p. 489.
Visualization of Bile Ducts Following Administration of Barium Meal. E. L. Jenkinson and I. E. Brouse, Chicago.—p. 499.
Acute Gonococcal Epididymitis: Résumé. C. H. Garvin, Cleveland.—p. 502.
Present Status of Uncomplicated Gastric and Duodenal Ulcer. A. O. Wilensky, New York.—p. 510.
Diagnosis and Treatment of Acute Craniocerebral Injuries. A. Ochsner, New Orleans.—p. 523.
Uncommon Congenital Malformation: Case. R. F. Metcalfe, San Francisco.—p. 532.
Chronic Constipation: Rational Explanation of Symptomatology, with Suggestions for Treatment. R. Cummings, Los Angeles.—p. 534.
Carcinoma of Prostate: Unusual Metastases. M. B. Wesson, San Francisco.—p. 537.
New Endovesical Instrument. N. Shnayerson, New York.—p. 543.
Cuneiform Osteotomy: Method of Planning Dimensions of Wedge to be Removed. W. H. Robinson, Pittsburgh.—p. 546.

Parathyroidism.—Ballin and Morse believe that parathyroidism is a frequent condition and will be encountered often if the symptoms are looked for and interpreted properly. General demineralization of the bones, due to deficiency of calcium, in addition to localized cystic areas usually with severe pain in the bones, especially in the back and legs, is the rule. The combination of these bone changes with high blood calcium and lowered blood phosphorus should be sufficient reason to investigate the parathyroid area for tumor or hyperplasia of the parathyroids. The parathyroid tumor or hyperplastic gland should be removed in such patients. This operation seems to be fairly safe under proper after-care with the administration of parathyroid and later on of calcium preparations.

Meningitis.—Gatewood reports a case of jacksonian epilepsy due to a traumatic brain cyst following skull fracture. *Bacillus fecalis-alkaligenes* meningitis followed operation. The patient made an uninterrupted recovery after spinal puncture. Attention is called to the similarity of the clinical picture with that of *Bacillus paratyphosus* B meningitis. As far as the author is aware, this is the first case of *B. fecalis-alkaligenes* meningitis to be reported.

Surgical Treatment of Carcinoma of Thoracic Esophagus.—The Bessesens describe their method of surgical treatment of carcinoma of the thoracic esophagus. At preliminary operation, a Janeway or Witzel gastrostomy is performed under local anesthesia and the liver and lymphatics in the region of the diaphragmatic esophagus are inspected. From two to six weeks being allowed for recovery and upbuilding of the patient, artificial pneumothorax is induced and the thorax is opened under narcosis and local anesthesia, gas being used in addition if needed. After the pleura has been protected with rubber sheets, the esophagus is dissected from its mediastinal bed and drawn out through the neck. Great care is taken to control hemostasis and protect the vagus nerves consistent with complete removal of the carcinoma. Finally, all the air is removed from the thorax, the chest is tightly strapped and healing is allowed for seven days before the stump of the esophagus in the neck is opened. The patient may then be allowed to drink. Preoperatively and postoperatively, the scientific use of the gastrostomy and the administration of fluids by vein and subcutaneously will give these patients the most hopeful outlook from surgical treatment of carcinoma of the esophagus. Only by prompt diagnosis and early treatment will it be possible to offer these patients anything but a 100 per cent fatal prognosis.

Inguinal Hernia.—According to Thompson and Reed, traumatic inguinal hernias occur as complete and incomplete indirect hernias. Complete indirect inguinal hernia, whether spontaneous or traumatic, is the result of the dilatation of a preexisting funicular process. Incomplete indirect inguinal hernia is either the early stage of the complete type or it is the bulging of the normal peritoneum following a giving way of the fibers of the aponeurosis of the external oblique. In all types of traumatic hernias the sudden stretching of the peritoneum causes immediate disabling pain often accompanied by nausea. If these symptoms are lacking, the hernia is not the result of a single strain. In hernias with thin-walled sacs it is impossible to determine the age of the hernia by the size of the sac.

Annals of Internal Medicine, Ann Arbor, Mich

4: 1499-1640 (June) 1931

*Electrocardiogram in Angina Pectoris. M. H. Kahn, New York.—p. 1499.
Relationship of Pain to Jaundice. J. F. Weir, Rochester, Minn., and W. T. Partch, Evansville, Ind.—p. 1509.
*Appendical Oxyuriasis: Study of Its Incidence in 20,969 Extirpated Appendixes. H. Gordon, Ann Arbor.—p. 1521.
Idiopathic Thrombopenic Purpura. E. I. Guller and J. S. Lawrence, Rochester, N. Y.—p. 1535.
Chronic Mercurial Poisoning Simulating Acute Cholecystitis and Choledocholithiasis: Case. J. W. Hinton, New York.—p. 1545.
Diagnosis of Preclinical Tubercle in Suspects and Contacts by Caulfeild's Inhibitive and T. C. F. Clinical Application: II. Graphs and Roentgen Rays. W. E. Ogden, Toronto.—p. 1551.
Some Observations as to Results of Phrenic Exeresis in Pulmonary Tuberculosis. A. T. Cooper, Denver.—p. 1569.
*Primary Tuberculosis of Spleen: Clinical Resemblance to Banti's Disease: Three Cases. A. E. Price and R. L. Jardine, Detroit.—p. 1574.
Superior Longitudinal Sinus Thrombosis with Subarachnoid Hemorrhage: Case. R. S. Leadingham, Atlanta.—p. 1584.
*Gland Extracts in Experimental Carcinoma and Sarcoma of Albino Rats. O. M. Gruhzit, Detroit.—p. 1589.
Amebic Dysentery: Sugar Cane as Possible Distribution Hazard. M. Sturtevant, New York.—p. 1598.
Reasons for Artist's Conception of Physician. B. Wolepor, Philadelphia. —p. 1601.

Electrocardiogram in Angina Pectoris.—Kahn states that the diagnosis of angina pectoris rests on the clinical features, particularly on the symptomatic attacks. In cases of clinical angina pectoris any abnormality of the electrocardiogram, however trivial, may be significant. The alteration in form of the T wave following a minor attack is a gradual one, except when there is massive occlusion, so that every alteration is important. In order that the electrocardiogram should serve best in diagnosis, frequent records should be made at intervals. A series of 330 cases of typical angina pectoris is analyzed; twenty-three, or 7 per cent, of the patients died during an attack. Of all the patients, 137, or 41 per cent, showed negative electrocardiograms during the entire period of observation. In the fatal cases, 30 per cent of the patients had negative or insignificant electrocardiograms during the entire time of supervision. In the evaluation of the electrocardiogram as an aid in the diagnosis of angina pectoris, it should be remembered that negative observations must be dismissed from consideration while even trivial ones may have weighty significance.

Appendical Oxyuriasis.—In a series of 20,969 extirpated appendixes, Gordon found oxyurids in 221 (1.05 per cent). Females were much more commonly infected than males (1.26 per cent and 0.74 per cent, respectively). Infestation was much more common during the first decade of life than in later years. There was no significant seasonal predilection for the occurrence of oxyuriasis. The incidence of appendical oxyuriasis was significantly greater during the past decade than during the earlier years of the period under survey (1894-1930). The increased frequency of appendical oxyuriasis is probably related to the increased consumption of uncooked leafy vegetables and raw fruits.

Primary Tuberculosis of Spleen.—Price and Jardine report three cases of primary tuberculosis of the spleen and review one case from the literature. In all four, a close similarity to Banti's disease was noted. The resemblance between the two conditions was based not only on the general symptomatology, such as pain and tumor in the upper left quadrant, and weakness, but also on definite physical and laboratory observations; namely, an associated liver enlargement, ascites and blood picture. Especial attention is called to the fact that fever, while usually present in tuberculosis of the spleen, is not an invariable accompaniment, and hence its absence should not rule out this condition. The pathology of splenic tuberculosis is discussed and its variability noted. The treatment, by almost unanimous agreement, is splenectomy.

Carcinoma and Sarcoma of Albino Rats.—Gruhzit asserts that albino rats inoculated with Flexner-Jobling carcinoma, when treated with different suprarenal cortex substance

extracts with both high and low epinephrine content, did not show a delay in the growth of the tumors or their regression as compared with either untreated tumor bearing rats or those treated with a nonspecific protein extract of oxen testis. The treatment with thymus extract neither inhibited the growth nor caused the carcinoma tumors in rats to regress. Injection of the extract did not prolong the life of the tumor bearing animals. The suprarenal cortex extracts with high or low epinephrine content, the thymus, omentum lipoid extract and the oxen testis extract neither inhibited growth nor caused regression of Jensen sarcoma tumors in albino rats. The rate of ulceration of carcinoma tumors under treatment with various gland extracts was not greater, as compared with the rate of ulceration of similar tumors in rats under treatment with inorganic salts or with a nonspecific extract of oxen testis. The organic extracts studied in experimental carcinoma and sarcoma in rats had no beneficial effect in inhibiting growth of the tumors, their regression, nor did the extracts cause prolongation of life of the tumor bearing animals, as compared with untreated tumor bearing animals or those treated with nonspecific protein extracts.

Archives of Internal Medicine, Chicago

47: 829-988 (June) 1931

*Hypoglycemia: Clinical Syndrome, Etiology and Treatment; Case Due to Hyperinsulinism. G. D. Gammon, Philadelphia, and W. C. Tenery, Waxahachie, Texas.—p. 829.

Effect of High Altitudes on Cholesterol, Lecithin and Fatty Acids in Plasma of Healthy Men. G. L. Muller and J. H. Talbott, Boston. —p. 855.

Biometrical Analysis of Two Thousand, Five Hundred and Sixty-Two Complete Examinations of the Blood. E. T. Herrmann, St. Paul. —p. 861.

*Effect of Intrathoracic Pressure on Arterial Tension. E. Grimes, Des Moines, Iowa.—p. 876.

*Value of Determinations of Iron Content of Whole Blood. W. P. Murphy, R. Lynch and I. M. Howard, Boston.—p. 883.

*Pernicious Anemia with Fatal Termination During a Liver Diet: Three Cases. J. B. Carey, Minneapolis.—p. 893.

Tuberculous Infection: Attempts to Prevent It by Subcutaneous Vaccination with B C G. J. Heimbeck, Oslo, Norway.—p. 901.

Primary Carcinoma of Duodenum: Four Cases. J. Meyer and D. H. Rosenberg, Chicago.—p. 917.

Acute Isolated Myocarditis: Case. C. E. de La Chapelle and I. Graef, New York.—p. 942.

IV. Coronary Sinus Rhythm: Rhythm Subsequent to Destruction by Radon of Sino-Auricular Nodes in Dogs. M. C. Borman, Milwaukee, and W. J. Meek, Madison, Wis.—p. 957.

Appearance of Histiocytes in Peripheral Blood. W. Dameshek, Boston. —p. 968.

Hypoglycemia.—Gammon and Tenery state that hypoglycemia may result from the following types of abnormal mechanisms: (1) from disturbance of carbohydrate control (*a*) through overproduction of insulin by hyperfunction, hypertrophy or tumor of the islets or (*b*) through loss of the substances that are antagonistic to insulin, as in hyposuprarenalism, hypothyroidism, pituitary dysfunction or combinations of these; (2) from interference with storage or release of glycogen in the depots of the body—the liver and muscles—or from depletion of glycogen from physical effort; (3) from conditions in which dextrose is lost from the body as such, e. g., in renal diabetes, or as other sugar, e. g., in lactation. The most important cause, by far, is that of overproduction of insulin. In attempting to distinguish the various types of hypoglycemia, one must look for concomitant evidence of disorders of the endocrine glands or glycogen depots or of the loss of carbohydrate. Hypoglycemia of pancreatic origin presents a typical syndrome recognized without difficulty. The point of distinction between hypoglycemic seizures and other convulsive states rests on the depressed blood sugar level. A history of relief from the ingestion of food often suggests this investigation. A review of the clinical manifestations of pancreatic hypoglycemia is given, based on the cases reported in the literature. A typical case of hyperinsulinism is added to this group. In order to contrast pancreatic with other forms of hypoglycemia, examples of the various types of spontaneously appearing hypoglycemia are cited. Outlines of the details of the available reports of pancreatic hypoglycemia and of leading cases of the other types are given in tables.

Arterial Tension.—According to Grimes, a forced expiratory effort made with the exit of air closed causes a drop in systolic pressure; when the breathing is resumed there is a marked elevation in the pressure, and the elevation so produced is usually not more than 25 or above the individual's pressure at rest. This pressure is therefore considered normal. In some persons the pressure rises to 75 or more above the pressure at rest. Such rebounds are considered normal. It is shown that the change in pressure is due to shutting off the supply of blood to the heart because of increased intrathoracic pressure, thereby causing a drop in pressure, and that when normal respirations are begun the heart and arteries are suddenly overloaded by the blood that has been dammed back, thus causing a sudden high wave of arterial tension. In the author's observations the intrathoracic pressure never exceeds the intra-abdominal, a fact that explains the physiology of the supply of blood to the heart during effort. An abdominal high wave of arterial pressure is due not to the condition of the heart but to the diminished elasticity of the arteries. A series of 100 patients with abnormally high rebound was checked with that of an equal number with a normal rebound. These two series were kept under observation for twenty years. The mortality in the series with a high rebound was 32 per cent in twenty years compared with a mortality of 12 per cent in the series with a normal rebound. The high mortality was due to vascular or renal failure. From the observations, the following conclusions are drawn: 1. The test is a positive measure of arterial elasticity and is of definite clinical value. 2. A high respiratory rebound is the first indication of oncoming hypertension and of arterial fibrosis, with or without high pressure. 3. A person showing a high rebound should be intensively studied for syphilis and nephritis. 4. The test does not indicate the integrity of the heart, measure its efficiency or fortell its failure.

Iron Content of Blood.—Murphy and his associates made determinations of the iron content of the whole blood of a group of persons having an essentially normal hemoglobin level and red blood cell count and record the figures. The average iron content of the blood in normal young men is 44.84 mg. per hundred cubic centimeters of blood, in normal young women 42.48, and in a group of sixty persons of both sexes and of varying age with an essentially normal blood 42.74. It is suggested that a figure to be known as the "iron index" be calculated by dividing the figure for whole blood iron by the red blood cell count in millions of cells per cubic millimeter. This figure normally varies between 8 and 9, the average in this series being 8.46.

Pernicious Anemia.—Carey gives the case histories of three patients with pernicious anemia who died while under treatment with adequate amounts of liver or liver extracts. They died just as one might have expected before the advent of liver therapy, although, with the exception of the third patient, possibly not so rapidly. The author does not draw any conclusions from these few cases but makes comments. He states that liver therapy apparently has no effect on the ultimate outcome in every case of pernicious anemia. It is too soon to begin to be hopeful that liver substances can indefinitely check the progress of the disease. In considering the result of liver therapy with the idea of deducing an etiologic hypothesis, one must not forget that achylia and sclerosis of the spinal cord are integral parts of the syndrome and that these changes are apparently unaffected by liver. In certain cases it is evident that one must expect death as the result of the progression of disease of the spinal cord, in spite of a relatively good condition of the blood. In other cases, the blood-forming organs become incapable of further regenerative effort, perhaps as the result of the age of the patient, or even conceivably in younger patients because of exhaustive overstimulation. Finally there are patients with an aplastic marrow who cannot become stimulated initially.

Archives of Ophthalmology, Chicago

5: 849-1006 (June) 1931

Glasses: How Should the Ophthalmologist Write His Prescription? A. Cowan, Philadelphia.—p. 849.

Calcium in Relation to Cataract: I. In Vitro. D. B. Kirby, New York. —p. 856.

*Id.: II. In Vivo. D. B. Kirby, New York.—p. 868.

Congenital Anophthalmos with Orbitopalpebral Cyst. M. Rosenbaum, New York.—p. 884.

Retinoblastoma: Its Recognition When Fundus Oculi is Obscured. G. M. Bruce, New York.—p. 890.

Focal Infection: Etiologic Factor in Diseases of Eye. O. R. Lourie, Boston.—p. 893.

Behavior of Vitreous Under Different Hydrogen and Hydroxyl Ion Concentrations; Study in Vitro. P. W. Salit and C. S. O'Brien, Iowa City.—p. 903.

Test Types for Estimating with Worth's Amblyoscope the Vision of Malingerers. S. R. Gifford, Chicago.—p. 918.

*Gliomas of Retina Including Results of Studies with Silver Impregnations. R. R. Grinker, Chicago.—p. 920.

Multiple Epidermoid Carcinoma of Eye and Lid. A. H. Cochran, Jr., and G. A. Robinson, New York.—p. 936.

Postcycloplegic Test. H. Beard, Chicago.—p. 943.

Calcium and Cataracts.—Kirby states that many empiric studies have been made with the hope of discovering something that would prevent the onset and progress of cataract or restore useful vision to those afflicted. In certain eyes there are opacities which have developed to a certain stage and then, because the factor that produced them has become inactive, no longer progress. The opacity is pushed toward the center of the lens as more clear cortex is formed by the equatorial cells. The observation time and again of this phenomenon, rather than the reports of spontaneous absorption or retardation, arrest or cure of cataracts by various local and systemic measures, constitutes a valid reason for continuing the study of the nonsurgical treatment for cataract, both from the clinical standpoint and by fundamental investigations into the nutrition and metabolism of the crystalline lens. So much has been learned recently concerning calcium metabolism that it seemed worth while to pursue a complete study in regard to the relation of calcium to the eye and particularly to the lens and cataract. The calcium in the aqueous represents the ionized and nonionized diffusible fraction from the total calcium of the blood plasma. There is an extremely small amount present normally in the crystalline lens, but the importance of the element in combination with the other elements is out of all proportion to the chemicals involved. Calcium is greatly increased in the lens in senile cataract. Calcium deficiency in cases of infantile tetany is undoubtedly responsible for the development of cataract in these cases. Even though the factors that produce and cure rickets are the same as those for tetany, there is some difference that has not as yet been discovered between rickets and tetany, and cataract is linked up with the tetany rather than with the rickets complex. The widespread knowledge and use of the factors preventing and controlling rickets and tetany have led to a decrease in the number of tetany cataracts. One illustrative case of postoperative tetany with cataracts from the thirty-eight cases to be found in the literature is reviewed. The important points to be learned are: (1) prevention of the removal of parathyroid tissue at the time of thyroidectomy, and (2) early treatment of such patients as show parathyroid deficiency. A great many of the latter cases are undoubtedly only temporary, resulting from vascular disturbances. The pathogenesis of tetany cataract implies a reduction in the serum, aqueous and lens calcium content with electrochemical changes and disturbance of equilibrium of the inorganic elements in the lens, causing changes in the labile colloidal solution of the lens protein. Once these changes are established, the administration of calcium or parathyroid extract does not cause a restoration of the normal state of the protein. Not all tetany cataracts progress to complete opacity. The prognosis in complete tetany cataract depends on the operative removal of the cataract. In cases of senile cataract, the deposition of calcium most probably results from (1) very slow death of lens tissue, dependent on nutritional deficiency; (2) degeneration of the lens protein with lipoid by-products; (3) local concentration of calcium by adsorption to the large molecules of the lipoids, and (4) deposition of this calcium by a change in the p_H toward the alkaline side. There was no evidence of tetany or latent tetany in a series of cases of senile cataract. Two separate series of cases of senile cataract were investigated as to the serum calcium level. In the first series twenty-eight men, aged from 52 to 80, had an average level of 11.3 mg. per hundred cubic centimeters, while twenty-five women, aged from 52 to 82, had an average level of 10.9 mg. The second series included thirty-three men, from 45 to 82 years of age, whose average serum calcium level was 10.29 mg., and fifty women, aged from 50 to 82, whose level was 10.34 mg. No variation could be found according to age, sex, type of cataract, visual quotient or complicating ocular or general disease. There is therefore no evidence of calcium deficiency as far as the blood serum values are concerned in cases of senile cataract. In the study of the endogenous calcium metabolism in cases of senile cataract, the relation of the intake of calcium in the diet was carefully calculated and compared with the output of calcium in the urine and feces. The results showed that the patients were in perfect or slightly positive balance when on a neutral or slightly alkaline diet, but when on an acid residue diet or when receiving injections of parathyroid extract they were in negative balance, excreting more calcium than they ingested. In other words, these patients were responding normally to the factors influencing calcium metabolism and were utilizing their calcium properly. There was no indication for the administration of calcium salts to any of these patients. If patients with senile cataract are found to have normal serum calcium but are in negative calcium balance, it is better to correct the factor that is producing the latter than to administer calcium salts to them to make up the deficiency. There was no reason for the administration of parathyroid extract to these patients, as they had sufficient serum calcium. Parathyroid extract-Collip produced excess urinary excretion of calcium, but the excess calcium that was mobilized from the tissues undoubtedly came from the normal storehouse, the bony trabeculae, where it is easily available, and not from deposits in the cataracts.

Gliomas of Retina.—According to Grinker, the glial tumors of the retina are divisible into three large groups. The medullo-epitheliomas consist mostly of primitive retinal epithelium, which persists in adult life as ciliary epithelium and from which these tumors arise, and also of neuro-epithelium and retinoblasts. Retinoblastomas are chiefly composed of retinoblasts. In the tumors composed of these indifferent cells, evolutionary stages in the histogenesis of adult retinal glia have been found, but cells of the ganglion series have not as yet been described. In the neuro-epitheliomas, spongioblasts are found in rosette-like arrangement. These cells closely resemble the rods and cones. Primitive spongioblasts, astroblasts, astrocytes and oligodendroglia are also found, all normally derived from the neuro-epithelium. A histogenesis of glia possibly occurs in these tumors, but each group contains a preponderance of the more primitive types of cells. Tumors of pigmented epithelium have not been described, possibly because the epithelial cells lose their pigment in neoplasms. A better understanding of retinal gliomas can be obtained by comparing the cells found in retinal tumors with stages in the histogenesis of normal retinal elements. The specific morphologic characteristics of the glia constituents of the gliomas can be obtained only by the use of proper methods of fixation, sectioning and silver impregnation.

Archives of Pathology, Chicago

11: 841-985 (June) 1931

*Chloroform Content of Brain Following Anesthesia. A. O. Gettler and H. Blume, New York.—p. 841.

Leiomyosarcoma of Pleura: Case. L. Catron, Chicago.—p. 847.

*Flexner-Jobling Rat Carcinoma: Effect of Feeding Liver and Muscle on Growth of Tumor. H. D. Caylor, E. J. Baldes and F. C. Mann, Rochester, Minn.—p. 854.

*Disseminated Venofibrosis (Phlebosclerosis): Its Clinicopathologic Significance. L. Hauswirth and A. A. Eisenberg, New York.—p. 857.

*Occurrence of Numerous Large Giant Cells in Tonsils and Pharyngeal Mucosa in Prodromal Stage of Measles: Four Cases. A. S. Warthin, Ann Arbor, Mich.—p. 864.

*Intradural Teratoid Tumors of Spinal Cord: Case. K. Hosoi, Albany, N. Y.—p. 875.

*Ruptured Aneurysm of Cystic Artery of Gallbladder as Result of Toxic Arteritis: Case. S. R. Rosenthal, Chicago.—p. 884.

*Histology of Experimental Tuberculosis in Different Species: Comparative Study. W. H. Feldman, Rochester, Minn.—p. 896.

*Spontaneous Bilateral Decapsulation of Kidneys: Case. W. M. McGrath and C. W. Apfelbach, Chicago.—p. 914.

Chloroform Content of Brain.—Gettler and Blume state that a dog killed by the excessive administration of chloroform contained in the brain 551.5 mg. of chloroform in 1,000 Gm. of tissue. Animals while fully anesthetized with chloroform contained in the brain 270 mg. and 284.6 mg. in 1,000 Gm. of tissue. When an animal was in the stage of recovery, the chloroform content of the brain dropped rapidly during the first thirty-four minutes, so that only 51.3 mg. in 1,000 Gm. of brain tissue was left. From then on, the chloroform content decreased more slowly, and after 190 minutes there was only 0.16 mg. of chloroform present in 1,000 Gm. of brain. Animals

appeared normal again after forty minutes. At this time they probably had about 45 mg. of chloroform in 1,000 Gm. of brain. From fifteen to thirty minutes after the animals seemed normal, the brain contained from 35 to 30 mg. of chloroform in 1,000 Gm. In the stage of recovery, the lungs contained much less chloroform than the brain.

Rat Carcinoma.—From data presented by Caylor and his associates it is apparent that, following the transplantation of Flexner-Jobling rat carcinoma, the animals fed fresh liver or muscle as an adjunct to their regular ration lived for fewer days than did the animals fed the usual laboratory ration. At the time of death the volume of the tumor was larger in the animals fed liver than in the control group and the group given the ration high in protein. The number of days between the inoculation of the rat with the tumor and the ulceration of the growth was greater for the control group than for the rats fed liver. What element was supplied to the diet of the animals by the liver that apparently stimulated the growth of the tumor is not known, although the demonstrated stimulative effect of cholesterol and lecithin would suggest that these substances might have been responsible. It seems likely that the addition of liver or of a ration high in protein to the regular ration of the rats that were inoculated with the tumor increased the nutriment for the growth of the tumor, which probably should be considered much as a parasite. Although these observations were made in animals and with a transplanted tumor that cannot be considered the same as a spontaneous neoplasm growing in man, it would seem worth while to proceed cautiously in the administration of liver to patients with carcinoma.

Phlebosclerosis.—Hauswirth and Eisenberg consider that venofibrosis (phlebosclerosis) is entirely different from arterio (athero)-sclerosis, there being no evidence of fatty changes or of calcification; the entire process is apparently noninflammatory, and the histologic picture presents a varying degree of endothelial or subendothelial and medial replacement fibrosis. The cases seen by them have invariably occurred in men under 40 years of age, none of them showing the slightest tendency to simulate—clinically—arterial lesions; a great majority of the patients had small hearts and low arterial tension; in other words, while venofibrosis may occur with arteriosclerosis, it is independent of it. Venofibrosis is not rare, but is rarely recognized, because it is rarely looked for. This lesion may indicate what Pende calls constitutional deficiency in the structure of the vascular wall. Most of the authors' cases seem to be associated with peptic ulcers. It is reasonable to assume that veins because of their weaker structure and greater exposure to injurious elements would be a more common site for lesions than the arteries. Thrombo-angiitis obliterans begins in the veins, and the condition is not inflammatory; the inflammation associated with it is a terminal process occurring after the vessels have become thrombosed and devitalized.

Prodromal Stage of Measles.—According to Warthin, the essential pathologic lesion in the tonsils and pharyngeal mucosa in the prodromal stage of measles (from twenty-four to ninety-six hours before the exanthem) is a subepithelial infiltration of multinucleate syncytial giant cells, lymphocytes and monocytes, wandering of the giant cells into the mucosa and on to its surface, with edema and congestion, marked lymphoid exhaustion of the germinal centers with production of the multinucleate giant cells from cells of the lymphoblast type, and migration of these cells toward the mucosa. Local aggregations of the giant cells, with more marked local edema and congestion, suggest potential Koplik spots. This pathology is so distinctive that a positive diagnosis of measles may be made from one to five days before the exanthem appears. The process is interpreted as a defensive one, directed to an etiologic agent, either in or on the pharyngeal mucosa. This bears out the view of a primary respiratory infection. No evidence of phagocytosis by these giant cells could be obtained by the use of a large number of staining methods applicable to the demonstration of micro-organisms. No participation in the process by the vascular endothelium was noted, nor could any inclusions be found in the latter.

Teratoid Tumors of Spinal Cord.—Hosoi, on the basis of a review of the literature, concludes that complex tumors of the spinal cord are of extreme rarity. Nine cases are recorded among the hundreds of reported tumors of the spinal cord. The author reports an additional case of teratoid tumor of the lumbar spinal cord in a young man who had spina bifida occulta and a pilonidal cyst. Owing to early spinal decompression, he regained the use of both his lower extremities. Only a slight incontinence of urine was left.

Aneurysm of Cystic Artery.—Rosenthal reports a case of aneurysm of a branch of the cystic artery, which had ruptured into the gallbladder and, in turn, into the abdominal cavity, as a result of ulcerative cholecystitis and cholelithiasis. A toxic, degenerative process of the cystic artery is described as the pathogenesis of the aneurysm. This process consists of an edema of the media, followed by rarefaction and rupture at one point. When the tear extends to the intima, a thrombus forms, which, if the process is slow, becomes organized and forms the wall of an aneurysm. When circulation is established through the aneurysm, the possibility of rupture is great.

Experimental Tuberculosis.—With the use of pure strains of *Mycobacterium tuberculosis*, representative of the human, bovine and avian forms of the organism, Feldman induced experimental tuberculous infection by various procedures in chickens, rabbits, guinea-pigs and dogs. From the lesions obtained a comparative study was made to determine whether the anatomic character of the cellular reaction in the respective species varied with the type of the tubercle bacillus used to incite the lesions, or whether the histologic character of the lesions in a given species was constant regardless of the form of tubercle bacillus present. From this study the following conclusions seem pertinent: Variations in the character of the reaction of the tissue to *Mycobacterium tuberculosis* are not determined by the type of the organism per se, but by certain indefinite factors which are inherent in the species possessing the infection. The histologic nature of tuberculous infection in a given species is essentially the same regardless of the form or of the origin of the particular strain of tubercle bacillus responsible for the lesions. The lesions of tuberculosis in the common fowl usually possess certain anatomic characters that distinguish them from tuberculous lesions in the lower mammals. These observations indicate that it would be injudicious to designate a given tuberculous infection as being due to organisms of human, avian or bovine origin in the absence of results of tests for pathogenicity.

Decapsulation of Kidneys.—McGrath and Apfelbach describe two kidneys with a watery fluid in their capsules. The names commonly given to this condition are perirenal hydronephrosis, perirenal hygroma and renic hydrocele. In the cases of accumulations of fluid in the capsules of the kidneys thus far reported in the literature the accumulations are explained by the authors as collections of lymph from blockage of lymph channels, as exudates from inflammation of the renal capsules or from hemorrhage, and as extravasations of urine. The gross and histologic evidence in the authors' case points as much to extravasation of urine within the capsules of the kidneys as it does to blockage of lymph channels. The alterations in the capsule are those of encapsulation, and inflammation seems to be a remote etiologic explanation.

Arch. of Physical Therapy, X-Ray, Radium, Chicago

12: 327-382 (June) 1931

Application of Physical Therapy Measures in Treatment of Burns. W. S. Peck, Ann Arbor, Mich.—p. 327.
*Sciatic Scoliosis. S. Kleinberg, New York.—p. 333.
Electrothermic Extirpation of Tonsils: End-Results with Newer Technic. L. H. Silvers, New York.—p. 343.
Enucleation of Tonsils by Electric Cutting Current. J. Braun, New York.—p. 347.
Electrocoagulation of Tonsils with Especial Reference to Technic. J. A. Haiman, New York.—p. 349.
Therapeutics of Colonic Irrigation and Physical Methods. F. H. Morse, Boston.—p. 355.

Sciatic Scoliosis.—Kleinberg states that sciatic scoliosis is a painful lateral deformity of the back. It follows painful but simple lesions of the sacro-iliac joints, the vertebral articulations, lesions of the muscles and fascia of the lower part of the back and the buttock and sciatic neuralgia. It does not include and must be carefully differentiated from a lateral deformity of the trunk due to a gynecologic, genito-urinary, neurologic or vertebral lesion. In the care of a case of sciatic scoliosis it is

important to identify by careful physical examination the exact tissues involved, since only in this way can the therapy be intelligently and effectively applied. The mild and moderate cases can be relieved by conservative measures. The severe cases require thorough stretching under anesthesia followed by extensive immobilization of the trunk and the lower limb on the affected side. Even the severest case of sciatic scoliosis can be cured.

Journal of Bacteriology, Baltimore

21: 383-455 (June) 1931

Comparison of Colorimetric and Potentiometric Methods for Hydrogen Ion Determination of Solid Bacterial Mediums, Using Dilution Method Based on Buffer Equation. M. W. Lisse, O. G. Jensen and R. P. Tittsler, State College, Pa.—p. 383.
Do Broth Culture Filtrates Contain a Bacterial Growth-Inhibiting Substance? L. A. Barnes Cleveland.—p. 395.
Coli-Aerogenes Differentiation in Water Analysis. C. C. Ruchhoft J. G. Kallas, B. Chinn and E. W. Coulter, Chicago.—p. 407.

Journal of Urology, Baltimore

25: 531-680 (June) 1931

Neurosurgery in Treatment of Diseases of Urinary Bladder: I. Anatomic and Surgical Considerations. J. R. Learmonth, Rochester, Minn. —p. 531.
Chordotomy for Relief of Pain in Genito-Urinary Tract. F. C. Grant, Philadelphia.—p. 551.
Tumors of Bladder. J. H. Cunningham, Philadelphia.—p. 559.
Kidney Tumors in Children. G. C. Prather and E. G. Crabtree, Boston. —p. 589.
Physiologic Data on Renal and Ureteral Function as Recorded by Jarre Cinex Camera. R. E. Cumming, Detroit.—p. 613.
Primary Carcinoma in Diverticula of Urinary Bladder. A. H. Peacock and D. G. Corbett, Seattle.—p. 625.
Prostatic Stone Causing Pseudodiverticulum of Posterior Urethra. J. S. Eisenstaedt and T. G. McDougall, Chicago.—p. 639.
Intermittence of Pyuria at Level of Renal Papillae. J. F. Geisinger, Richmond, Va.—p. 649.
Recurrence of Benign Enlargement of Prostate. F. M. Cochems, Chicago.—p. 661.
Note on Comparative Anatomy of Prostate Gland. E. W. Hirsch, Chicago.—p. 669.

Laryngoscope, St. Louis

41: 387-450 (June) 1931

Auditory Nerve Experiments in Animals and Their Relation to Hearing. E. G. Wever, Princeton, N. J.—p. 387.
Nature of Stimulation at Organ of Corti in Light of Modern Physical Experimental Data. R. L. Wegel, New York.—p. 392.
Anatomy and Pathology of Petrousitis. J. G. Druss, New York.—p. 394.
Symptomatology and Diagnosis of Suppurations of Petrous Pyramid. S. Kopetzky, New York.—p. 398.
Surgical Therapy for Relief of Suppurations of Petrous Pyramid. R. Almour, New York.—p. 405.
Case of Temporosphenoidal Lobe Abscess Complicating Chronic Otitis Media Purulenta. H. M. Scheer, New York.—p. 407.
Report of Case of Primary Bulb Thrombosis: Operation Three Years Later, Circumscribed Labyrinthitis, Facial Palsy. L. Kend, New York.—p. 410.
Aural Cholesteatoma with Case Report. E. F. Ziegelman, San Francisco.—p. 413.
Two Cases with Severe Labyrinth Symptoms Occurring Following O. M. C. C. J. McCoy, New York.—p. 420.
Case of Jugular Thrombophlebitis Extending into the Innominate. W. MacMillan, Passaic, N. J.—p. 422.
Strictures of Esophagus: Diagnosis and Treatment. G. Tucker, Philadelphia.—p. 426.

Military Surgeon, Washington, D. C.

69: 1-126 (July) 1931

Disease Susceptibility in Filipinos: Ethnological Comparison. H. R. McKellar.—p. 1.
Water Supply of Naval Academy. J. C. Pryor.—p. 13.
Neurotrophic Changes in Leprosy. N. T. Kirk.—p. 18.
Foochow, China. L. L. Gardner.—p. 26.
*Rabies Immunization. R. A. Kelser.—p. 34.
Treatment of Shock in Rattlesnake Bites. M. L. Crimmins.—p. 42.
Tuberculosis in Philippines. L. R. Poust.—p. 45.
Goiter: Clinical Reminiscence. P. D. MacNaughton.—p. 49.
Adenocarcinoma of Rectum: Case. H. W. Jones.—p. 51.

Rabies Immunization.—Kelser states that, when a person is bitten by an animal manifesting no symptoms of rabies, the question is frequently raised as to whether prophylactic treatment should be commenced immediately or delayed. In such cases the proper procedure is to cauterize the patient's wound and, after placing the dog under veterinary observation, to withhold vaccine treatment pending developments in the dog. If the dog bit as a result of rabies infection, it was then already in the early stages of the disease, and during the subsequent three or four days it will manifest definite, typical and progressive symptoms followed by death. The diagnosis can then be definitely confirmed by a microscopic examination of the brain. Vaccine treatment of the patient should be commenced with the first evidence of symptoms in the dog. Dogs kept isolated and under observation for a period of two weeks without developing evidence of rabies can be released and the conclusion reached that the animal was not rabid at the time it bit the patient. An unfortunate type of case is that in which a person is bitten and the animal inflicting the wound immediately destroyed. In such cases there is no choice but to start vaccine treatment at once. If the dog's brain is examined and Negri bodies found, treatment would be indicated. If they are not found it must be concluded that the animal, nevertheless, may have been rabid and Negri bodies were not present because the dog had been destroyed in the early stages of the disease. It is then necessary to inoculate rabbits and, as twelve to twenty days or longer are required for results, treatment of the patient cannot be safely deferred that long. It is thus apparent that in these cases the physician has no alternative but must immediately start administering vaccine. Obviously, under these circumstances persons must submit to treatment in instances in which it is subsequently shown that the animal was not rabid.

New England Journal of Medicine, Boston

204: 1335-1384 (June 25) 1931

*Spinal Epidural Granuloma. J. W. Watts, Chicago, and W. J. Mixter, Boston.—p. 1335.
*Forgotten Foreign Bodies. L. Richards, Boston.—p. 1344.
*Referred Pain of Gastro-Intestinal Origin Simulating Angina Pectoris. R. S. Palmer, Boston.—p. 1351.
Malignant Lesions of Large Bowel. F. W. Rankin, Rochester, Minn. —p. 1353.
*Unusual Case of Epidermoid Carcinoma of Uterus and Fallopian Tubes. J. A. Ferguson, Boston.—p. 1359.
Diaphragmatic Hernia in Adult. P. E. Truesdale, Fall River, Mass. —p. 1362.
Granuloma Inguinale: Case. A. C. Reed, San Francisco.—p. 1364.
Oil as Cystoscopic Medium. B. E. Greenberg, Boston.—p. 1366.
Edward Wyer's "Observations on Lymphatic Distention of Lower Extremities of Women While in Puerperal State." W. P. Coues, Brookline, Mass.—p. 1368.
Hazards and Hopes in Education of Trained Nurses. R. B. Osgood, Boston.—p. 1369.

Spinal Epidural Granuloma.—According to Watts and Mixter, the symptoms and signs of spinal epidural granuloma are sufficiently distinctive to give a definite clinical syndrome. This syndrome is characterized by evidence of cord compression, pain, spinal subarachnoid block, fever and a definite lymphocytosis in the lumbar fluid and by the complete absence of evidence of syphilis or tuberculosis. The treatment of this condition is operative. If there is a line of cleavage between the inflammatory tissue and the dura, the tissue should be stripped off without opening the dura. If the inflammatory process in the dura itself causes a narrowing of the cerebrospinal space by scar tissue contraction, it may be necessary to incise the dura to relieve the cord compression.

Forgotten Foreign Bodies.—Richards presents a series of foreign body cases to illustrate particularly the importance of giving due consideration to this condition when a diagnosis is being sought. Often a history of aspiration is available but must be extracted from parents who may fail to consider their suspicions of sufficient moment to mention them. Unless the physician, having the possibility in mind, closely questions his informants, a valuable clue may be lost. In the absence of a history or in the face of its denial, he must still be unconvinced and unwilling to disregard foreign body until either roentgen examination or bronchoscopy, or both, have been exhausted. Many times his suspicions will prove unfounded and an unexplained cough will be due to chronic bronchitis or recurrent vomiting to dietary imbalance, but from time to time, with foreign body in his mind as a possibility, he will make a brilliant diagnosis and save a life.

Pain Simulating Angina Pectoris.—Palmer reviews a case to illustrate what is frequently observed; namely, the cardiac or aortic origin of gastric symptoms. Four cases are reviewed showing that referred pain simulating angina pectoris may be of gastro-intestinal origin and that much relief may be

obtained from the use of a bland diet and tincture of belladonna. Three cases are presented to illustrate the differential diagnosis between gastro-intestinal and cardiac or aortic origin of referred pain of anginal distribution. The importance of evaluating these two factors for the purposes of prognosis and treatment is emphasized.

Carcinoma of Uterus and Fallopian Tubes.—Ferguson reports a case of epidermoid carcinoma of the uterus and fallopian tubes which showed an unusual sequence of events following radium therapy. Two years after four radium treatments had been given for an epidermoid carcinoma of the cervix and an adeno-acanthoma of the fundus, a hysterectomy was done. No extension of the disease or metastasis was found. The cervix was fibrosed and showed no trace of the original epidermoid carcinoma. The adeno-acanthoma had disappeared and was replaced by a surface growth of malignant squamous cell epithelium, which showed practically no invasion of the myometrium and no pearl formation. The cavity of the uterus was filled with yellowish keratinous débris; there was no continuity of tumor growth between the fundus and the fallopian tubes. While the epidermoid carcinoma of the fallopian tubes was most likely secondary to the disease of the fundus, the possibility of a primary malignant squamous cell metaplasia of the tubal epithelium could not be ruled out, nor could the possibility of a tumor embolus being forced through the intra-uterine part of the tube into the isthmus.

New Jersey Medical Society Journal, Orange

28: 467-538 (June) 1931

*Alcoholic Pseudopellagra: Report of Cases with Notations on Etiology. N. B. Heller, Newark.—p. 467.
Group of Endocrine Cases. F. J. T. Aitken, Bridgeton.—p. 470.
Sinusitis. E. S. Hallinger, Camden.—p. 475.
One Year of Neurologic Service at St. Peter's General Hospital in New Brunswick, N. J.—K. Rothschild, New Brunswick.—p. 478.
Indications for Surgery in Diseases of Thyroid. W. B. Parsons, New York.—p. 481.
Observations in Vienna Eye Clinics. A. R. Sherman, Newark. —p. 485.
Leukorrhea, Its Significance and Treatment. P. B. Bland, Philadelphia. —p. 489.
Useful Irrigating Fluid for Septic Wounds. H. H. Goldstein, Elizabeth.—p. 492.

Alcoholic Pseudopellagra.—Heller states that during the hot summer months he observes certain skin lesions that clinically cannot be distinguished from those seen in pellagra. Without any exception, all his cases were found in chronic alcoholic addicts who exposed themselves to the direct rays of the sun. It is quite difficult to explain these skin lesions. It is the accepted view that pellagra is caused by a dietary deficiency in animal protein amino-acids, together with an inadequate mineral salt supply and vitamin B. One can explain the skin changes in alcoholic pseudopellagra as the result of a deficiency of the same elements in the diet, but caused by the chronic alcoholism, which acts as a food substitute, thus causing a loss of appetite and diminished protein intake. Most of the patients have chronic gastritis. Whatever food they do manage to take is not properly digested and there develops a condition analogous to that found in pellagra. The direct sun rays act only as an exciting cause on a tissue that has been lowered in resistance by the dietary deficiency.

Philippine Islands M. Assn. Journal, Manila

11: 177-218 (May) 1931

Preventive Medicine in Retrospect: Lecture II. P. F. Russell, Manila. —p. 177.
Field Studies on Public Health in United States and Porto Rico. P. I. de Jesus, Manila.—p. 199.

Public Health Reports, Washington, D. C.

46: 1401-1454 (June 12) 1931

*Rocky Mountain Spotted Fever (Eastern Type): Transmission by American Dog Tick (Dermacentor Variabilis). R. E. Dyer, L. F. Badger and A. Rumreich.—p. 1403.
Results of Operation of Standard Milk Ordinance in Missouri. F. A. Clark and W. S. Johnson.—p. 1413.

Rocky Mountain Spotted Fever.—Dyer and his associates obtained a female tick (*Dermacentor variabilis*) from a district where human cases of the eastern type of spotted fever were occurring. Larvae from this female were fed on a guinea-pig infected with the eastern type of spotted fever. After engorgement on the infected guinea-pig, these larvae were allowed to molt to nymphs. The nymphs were fed to engorgement on a noninfected guinea-pig and were then ground up and injected into fresh guinea-pigs. This resulted in establishing a strain of virus in guinea-pigs. Reports of histologic studies of the brains of guinea-pigs inoculated with spotted fever, eastern type, tick-passage virus are given. The production of agglutinins for *Bacillus proteus* X_{19} (type O) in monkeys inoculated with spotted fever, eastern type, thick-passage virus is discussed. From their observations the authors conclude that the virus of the eastern type of Rocky Mountain spotted fever is preserved in the body of the American dog tick through at least one molt.

46: 1519-1564 (June 26) 1931

Prevalence of Undulant Fever in United States. H. E. Hasseltine. —p. 1519.
*Studies in Asphyxia: I. Neuropathology Resulting from Comparatively Rapid Carbon Monoxide Asphyxia. J. Chornyak and R. R. Sayers. —p. 1523.

Asphyxia: Neuropathology.—Chornyak and Sayers studied the neuropathologic changes produced in dogs by fatal exposures of twenty to thirty minutes to 0.6 per cent by volume of carbon monoxide in air. From their observations they draw the following conclusions: 1. The circulatory changes in the brain in rapid carbon monoxide asphyxia are characterized by dilatation, stasis, perivascular hemorrhage and edema. 2. Edema is diffuse and severe. It is both perineuronal and perivascular. 3. There is a marked difference in the susceptibility of the nerve cells to oxygen deprivation. The cells of the cortex, corpus striatum, dorsal motor nucleus of the vagus and the dorsal sensory areas of the medulla are the most sensitive. The nucleus ruber, nuclei of the oculomotor, trochlear, abducens and facial nerve and the large polygonal cells in the reticular formation of the medulla are the least susceptible. 4. There are two general types of degenerative changes in the nerve cells following asphyxia: (*a*) Some become shrunken and stain diffusely; (*b*) others show varying degrees of chromatolysis. 5. Carbon monoxide produces a diffuse degenerative change throughout the entire brain. 6. In this type of asphyxia the most serious effect appears to be edema of the dorsal motor nucleus of the vagus and the adjacent area in the medulla oblongata.

Tennessee State Medical Assn. Journal, Nashville

24: 205-244 (June) 1931

Advantages of So-Called Sixth Sense in Treatment of Industrial Traumatic Injuries. S. R. Miller, Knoxville.—p. 205.
Deep Radiation Therapy. C. M. Hamilton and H. King, Nashville. —p. 209.
Optimistic Outlook in Treatment of Chronic Arthritis. W. C. Chaney, Memphis.—p. 217.

United States Naval Med. Bulletin, Washington, D. C.

29: 357-579 (July) 1931

Medical Aspects of Submarine "Lung" Training. L. K. MacClatchie. —p. 357.
Shock Due to Excessive Distention of Lungs During Training with Escape Apparatus. E. W. Brown.—p. 366.
Observations on Submarine "Lung" Training. B. H. Adams.—p. 370.
*Treatment of Recurrent Hernia. F. R. Hook.—p. 373.
Glance at Results of "Last Thirty Centuries" of Venereal Disease Prevention. C. S. Butler.—p. 383.
Cancer as Federal Problem. E. L. Whitehead.—p. 393.
Method of Producing Sterile Blowfly Larvae for Surgical Use. F. F. Murdock and T. L. Smart.—p. 406.
Water Supply of Naval Academy. J. C. Pryor.—p. 418.
Anesthesia: Minimum Requirements for Navy Needs. A. H. Dearing. —p. 423.
Medical Literature. R. P. Parsons.—p. 430.

Hernia.—According to Hook the percentage of recurrences following the modern operations for hernia is still high. Cure can follow only the complete eradication of all sacs. Each hernia should be regarded as a problem in itself and the operation made to fit the patient rather than the patient to the operation. Recurrent inguinal and postoperative ventral hernias are chiefly suture problems. The use of living fascial suture material in these hernias will give a much higher incidence of cure than other types of suture material.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Anaesthesia, Manchester

8: 129-172 (July) 1931

Spinal Anesthesia. E. F. Hill.—p. 132.
What is Aeris? B. Gardner.—p. 163.
Two Cases of Pulmonary Collapse. H. A. Richards.—p. 164.

British Journal of Radiology, London

4: 309-364 (July) 1931

Ionization Chambers for Roentgen-Ray Dosage Measurement. E. A. Owen and H. I. Jones.—p. 309.
Roentgen-Ray Stabilizers. R. S. Wright.—p. 339.
The Mysterious Universe. J. Jeans.—p. 351.
Bronzino Roentgen-Rayed. A. Burroughs.—p. 355.

British Medical Journal, London

2: 87-130 (July 18) 1931

*Some Clinical Pictures Attributable to Lead Poisoning with Especial Reference to Neurologic Manifestations of Plumbism. E. Bramwell. —p. 87.
*Cumulative Effects of Infinitesimal Doses of Lead. N. Porritt.—p. 92.
*Some Neglected Symptoms in Acute Abdominal Disease. V. Z. Cope. —p. 94.
Acute Osteomyelitis of Ilium. A. R. Short.—p. 97.
Prophylaxis of Tuberculosis of Larynx. H. M. Wharry.—p. 98.
*New Method of Treatment of Fractured Clavicle. J. Kemble.—p. 100.
*Renal Colic and Hematuria Following Recumbency. W. E. Wilson. —p. 101.

Clinical Pictures Attributable to Plumbism.—Bramwell enumerates the following points to which especial attention should be paid for purposes of corroboration in any given case in which one suspects lead poisoning from the character of the nervous symptoms: 1. The patient's occupation may raise the possibility. 2. On inquiry one may obtain a characteristic or suggestive history of attacks of intermittent, colicky, lower abdominal pain that is relieved by pressure. 3. The blue line on the gums, when present, is distinctive. It is, however, merely an indication of exposure, and not necessarily of poisoning, for many lead workers show the blue line and do not manifest any symptoms. But when symptoms are present which raise the possibility of plumbism the blue line is of the greatest diagnostic value. It is to be remembered, however, that this sign fails when the patient is edentulous or when the teeth are well cared for. 4. The examination of the blood in most cases of lead poisoning shows a secondary anemia with, in almost all cases, a punctate basophilia, which may, however, vary from day to day. To the latter appearance much importance is attached as an indication of early lead poisoning. Although not pathognomonic (for an occasional cell showing punctate basophilia may, it is affirmed, be sometimes seen in normal blood, and cells of this type are encountered also in pernicious anemia and leukemia), the presence of definite stippling is a most suggestive sign in a case of suspected plumbism. 5. Lead may be found in the urine, and its presence is then a clear indication that it has been absorbed into the system. On the other hand, its absence does not exclude lead poisoning, for the lead may be retained in the tissues. Lead may indeed be found in the urine of individuals who are admitted to the hospital for various conditions, who have not encountered obvious occupational hazards, and who do not present symptoms suggestive of lead poisoning. Consequently, while further observations are called for, the presence or absence of lead in the urine is a point to which too much importance must not be attached. Therefore while in many cases the diagnosis of lead poisoning is obvious, in others the possibility may never suggest itself, while even in cases in which one suspects lead as the cause of the clinical picture a definite conclusion may be arrived at only after a careful consideration of all the facts, if the source of poisoning is not detected.

Cumulative Effects of Minute Doses of Lead.—Porritt divides plumbism into two types: one, the classic lead poisoning of the textbooks, caused by massive doses; the other, little known, a slow, subtle, insidious saturation of the system by infinitesimal doses of lead extending over a long period of time and producing a group of symptoms altogether different from the recognized forms of plumbism. In the type of plumbism to which he refers there is rarely colic, seldom a blue line on the gums, and wrist-drop will occur only if the significance of the early symptoms are not recognized. There is rarely noticeable anemia. A strange lethargy creeps over the sufferer; he loses interest in life; everything is a trouble, a weariness of flesh and brain. He prefers to sit over the fire to tackling his work, though when he forces himself through his tasks he finds no diminution of brain or bodily power. As the condition continues he becomes gloomy and taciturn. Instead of joining in conversation with relatives and friends he sits silent and apathetic, as if overcome by thoughts too melancholy to utter. All his faculties and bodily powers are sluggish. His bowels are constipated and stubborn, he derives no satisfaction from his food, and he has perhaps abdominal discomfort, which he puts down to indigestion. The strange lethargy of body and mind increases. Sleep brings welcome respite, but he gets up tired and weary, as if he had not been to bed, though he has slept heavily all night; so tired, indeed, that to bathe, wash, and dress are ordeals he wishes he could shirk. Breakfast braces him up, but during the day, oppressed with a weariness of body and misery of mind, and unaccountably tired, he succumbs to his desire to sleep. In neurotic women emotional outbursts, with flatulence and abdominal pain, may punctuate the melancholy. The patient gets no sympathy from those about him. If his expression is saturnine, his complexion is fresh and healthy, he sleeps well, forces himself to do justice to his meals and his relatives set him down as a gloomy person who will not take the trouble to be chatty and lively. He is usually the only one in the house to behave so strangely, for lead has a selective action and the freedom of others from symptoms increases contempt for the sufferer. The remedy is simple—to stop the ingestion of lead. This can be done by sending the patient away from the lead, by substituting pipes lined with block tin for the lead pipes, or by passing every drop of water used in the preparation of food or for drinking purposes through a filter with a charcoal filtering bed. The so-called tin-washed pipes are not a protection and only a filter with a charcoal filtering medium can be trusted to remove lead from a plumbosolvent water. No medicinal treatment is necessary to expel lead from the body. If the ingestion of lead is stopped and the eliminatory organs are active, the body will get rid of it. If iodides liberate lead from the tissues, the extra lead set free will aggravate the patient's symptoms.

Acute Abdominal Disease.—According to Cope, the diagnosis of acute abdominal disease is a fascinating art which may be almost made into a science by attending carefully to the manifold symptoms to which it gives rise. The problems greatly differ from those in chronic abdominal disease. The combat against disease is in the one case a siege and the other a battle, and different qualities are required for success. In the acute disease, early appreciation of the menacing forces is essential and success may sometimes be gained by paying attention to small points which would in a chronic disease be regarded as trivial. In no other class of case is time of such importance, laboratory assistance of so little use and the opportunity for acute clinical observation so well provided.

Treatment of Fractured Clavicle.—Kemble describes a new method of treatment of fractured clavicle by the utilization of a molded plaster-of-paris slab. The technic is as follows: A fairly thick elongated slab is made by sandwiching several layers of plaster-of-paris bandage between two layers of lint. This slab is roughly rectangular but is somewhat wider at the ends than at the center. It is made to an exact size for each case. Its length is 1 inch greater than the distance between the deltopectoral folds in front of each shoulder. It is 4 inches wide in an adult and proportionately narrower in infants. When the precise position of the fractured ends in the roentgenogram has been recognized, the patient is seated on a backless chair. An assistant stands behind the patient, puts his left knee between the shoulder blades, and with the fingers of either hand in front of the shoulders draws them firmly backward, outward and upward. The surgeon stands in front and manipulates the fragments till reduction is perfect. The assistant retains this by maintaining the traction. The plaster slab is then applied by the surgeon in front. Each extremity is molded so as to be crutch-ended and to fit into the deltopectoral hollow

in front of each shoulder. It is made to come well down into the axilla beneath the shoulder so as to obtain sufficient upward lift. Owing to the prearranged length of the slab, the central part, which is in front of the sternum and inner portions of the clavicles, is bowed out from the skin surface slightly. Over the outer half to two thirds of the clavicle the slab is molded exactly to the contour of the bone in its corrected alinement. It thus embraces the fragments on both sides of the fracture. The plaster is held till set. A nurse then applies bandages in the following manner: First, a double figure of eight bandage is applied round both shoulders, with the intersection in front over the center of the slab. The assistant then relinquishes his hold. The effect of this bandage, firmly applied, is to exert a force backward, outward and upward on the center of the bow-shaped slab. The plaster here stands off a short distance from the sternum, so that this pressure is transmitted through the crutch-ends of the slab and pushes the shoulders and outer ends of the clavicles backward, outward and upward. The slab acts exactly as an adventitious clavicle, replacing the bone both in position and function as closely as is possible. It constitutes an efficient substitute till the continuity of the prototype is restored. Properly applied, this bandage is sufficient, for the slab maintains the shoulders in the braced back and supported position, when the assistant relaxes his hold. It is best, however, in order to ensure immobility of the plaster to apply another figure of eight bandage round the shoulders, with the intersection behind. The portion of the slab that has been molded so as to lie in intimate coaptation with the clavicle over the site of fracture acts as a perfect splint, preventing any possible movement at this point. The arm is supported in a sling at first, though this is not always necessary, and the patient goes home. The movements of the shoulder are partly restricted, but the rest of the arm and hand are perfectly free for use. The plaster is retained for from ten to fourteen days. Throughout, the patient is perfectly comfortable and on removal of the slab finds he has full movements of the whole limb. In a series of cases in which the method of treatment was used by the author, a roentgenogram was taken in every patient after reduction and application of the plaster. This confirmed a satisfactory reduction. The advantages and results can therefore be summarized thus: The method is simple. It is effective in securely retaining perfect alinement after reduction, so that a gratifying cosmetic result is assured and there is no risk of disability due to residual shortening of the bone. The patient is completely comfortable throughout the treatment and has free use of his hand and arm. As a result of this last circumstance, the period of incapacity due to the accident is considerably curtailed.

Renal Colic Following Recumbency.—Wilson states that during the latter period of the Great War many of the hospitals were made into centers where certain types of gunshot wounds were concentrated for reasons of efficiency and team work. The first London General Hospital at Camberwell became one of the centers for fractured femurs and it was among these cases that he came across a remarkable series of cases of renal colic and hematuria. During 1918 and 1919, 15 per cent of the patients in the femur wards developed renal colic, the actual pain being probably due in the majority of these cases to the passage down the ureter of large quantities of blood. It was manifest that this occurred, in most of the men, on assuming the upright position after prolonged decubitus. Infection must be ruled out: first, because of the frequency with which sterile urines were reported; secondly, one case was a simple fracture, the result of an airplane accident, with no wound or sepsis at all; thirdly, it was noticeable that nearly all the cases of renal colic occurred suddenly when the patients got up on the first or second day and that the patients just as quickly got well again, without running temperatures or having rigors, or indeed, having any further trouble up to two and a half years afterward. There was no evidence in any of the cases, except one, of calculus formation. The author believes that the great majority of these patients, at any rate, developed painful hematuria because of postural conditions, the sudden assumption of the upright position in too great a hurry being the deciding factor. He is firmly of the opinion that had he got these men up more gradually, and had they not been so enthusiastic in showing what they could do on their feet at such an early stage, fewer cases would have been recorded.

Glasgow Medical Journal

116: 1-80 (July) 1931

Place of Periarterial Sympathectomy and of Ganglionectomy and Sympathetic Trunk Resection in Treatment of Certain Vascular Diseases and Other Conditions. A. Young.—p. 1.

Journal of Laryngology and Otology, Edinburgh

46: 449-520 (July) 1931

Tuberculous Disease of Middle Ear. F. C. Ormerod.—p. 449.
Tuberculosis of Middle Ear, as Met with in Adults in a Sanatorium. S. Thomson.—p. 460.
Acute Streptococcal Infections of Throat. W. M. Mollison.—p. 466.

Journal of State Medicine, London

39: 373-434 (July) 1931

Our Mechanistic Age with Its Human Response, as Evinced in Social, Civic and Industrial Life of People. T. Oliver.—p. 408.
Health Education in Industry. V. Leverhulme.—p. 415.
Women's Work in Interests of Personal and Public Health. Viscountess Erleigh.—p. 423.

Journal of Tropical Medicine and Hygiene, London

34: 177-192 (July 1) 1931

Mathematical Justification of Mosquito Control. R. Ross.—p. 177.
Lesson of Mian Mir. M. Watson.—p. 183.

Kenya & East African Medical Journal, Nairobi

8: 63-92 (June) 1931

Report on Anophelines and Malaria in Trans-Nzoia District. C. B. Symes.—p. 64.
Pyothorax Complicating Tuberculosis: Recovery. W. G. S. Hopkirk.—p. 78.
Further Kikuyu Beliefs and Superstitions: Ethical Standards. R. U. Gillan.—p. 81.

Lancet, London

2: 111-170 (July 18) 1931

Toxic Jaundice. W. Willcox.—p. 111.
*Latent Maxillary Sinusitis. R. Paterson.—p. 117.
Meinicke Clarification Reaction for Syphilis in Mental Hospital Practice. W. Ogden and F. Partner.—p. 121.
Ochronosis: Case with Carboluria. J. L. Berry and S. Peat.—p. 124.
Observations on Chronic Urticaria. J. T. Ingram.—p. 126.

Latent Maxillary Sinusitis.—Paterson states that roentgen examination of the accessory nasal sinuses often serves to draw attention to cases of antral infection. It may also disclose cases of latent empyema of the antrum, not otherwise discoverable. These cases are those in which the lesions complained of are secondary complications of an unsuspected sinus lesion. Such complications fall into five main groups. The orbital group includes an extensive series of reported cases of defects of vision and orbital complications of serious moment. The cranial group includes those producing headaches, facial pain, or neuralgia of various types. The cerebral group is an interesting group in which disease simulating mental disease is found to be entirely due to sinus infection. The thoracic group has been frequently described recently, and consists of those cases of nonspecific pulmonary infection called chronic bronchitis, bronchiectasis, or asthma which are secondary to unsuspected sinus lesions. In addition there is a miscellaneous group in which distant lesions are unexpectedly found to depend on the presence of trouble within the sinuses. Illustrative cases are quoted.

Medical Journal of Australia, Sydney

1: 737-770 (June 20) 1931

"Avertin" in Surgery and Obstetrics. C. Coghlan.—p. 737.
"Avertin" Rectal Anesthesia. W. M. Balaam.—p. 745.
Experiences with Sodium Amytal as Basal Anesthetic. G. A. Hardwicke.—p. 750.

South Africa M. Assn. Journal, Cape Town

5: 337-368 (June 13) 1931

Vaccine Prophylaxis in Pneumonia: Review of Fourteen Years' Experience with Inoculation of Native Mine Workers on Witwatersrand Against Pneumonia. A. J. Orenstein.—p. 339.
Sedimentation Rate: Comparison in Some Groups of Diseases. C. D. Brink.—p. 346.

Tubercle, London

12: 433-480 (July) 1931

Natural Processes of Healing in Pulmonary Tuberculosis. M. Jaquerod. —p. 433.
Investigation and Assessment of One Hundred Cases of Pulmonary Tuberculosis. S. L. Cummins and S. B. H. Walker.—p. 436.

National Medical Journal of China, Shanghai

17: 283-392 (June) 1931

Medical Education and Some Recent Experiments. F. R. Dieuaide. —p. 283.
Occurrence of Dysentery and Typhoid Antibodies in Joint and Pleural Exudates. S. H. Zia.—p. 302.
Arthritis in Association with Bacillary Dysentery: Case and Discussion. S. H. Zia and H. J. Smyly.—p. 307.
New Operation for Correction of Paralytic Equinus Deformity of Foot. L. J. Miltner.—p. 313.
Volkmann's Contracture: Case. H. Shih.—p. 315.
Treatment of Volkmann's Ischemic Contracture: Twenty-Four Cases. L. J. Miltner.—p. 323.
Agranulocytic Angina (Schultz) and Functional Granulocytopenia. E. Tso.—p. 336.
Tetanus Neonatorum: Case with Recovery. C. Fan.—p. 349.
Blood Groups in Relation to Syphilis and Its Treatment. Dorothy H. Wong and F. K. Chen.—p. 354.
Preliminary Note on Filtrable Virus from a Patient with Mumps. F. F. Tang.—p. 360.

"Gann," Japanese J. Cancer Research

25: 71-130 (June) 1931

Fat Soluble Vitamins in Tumor Tissues. M. Sumi and W. Nakahara. —p. 71.

Japanese Journal of Gastroenterology, Kyoto

3: 97-174 (July) 1931

*Experimental Studies on Halogen Excretion from Liver: III. Excretion of Bromine and Iodine from Liver. Y. Maruno.—p. 97.
*Id.: IV. Influence of Cholagogues and Functional Disturbance of Liver on Iodine Excretion from Liver. Y. Maruno.—p. 111.
*Experimental Investigation on Fate of Bilirubin Introduced into Blood Vessels: III. On Excretion of Bilirubin from Liver. (2) Influence of Poisons on Vegetative Nerve. Formation of Gallstone. S. Saiki. —p. 119.
*Id.: (3) Influence of Intravenous Injection of Glucose; Treatment of Jaundice. S. Saiki.—p. 123.
Jaundice in Malarial Diseases: Clinical and Experimental Investigations; II. Experimental Research. S. Saiki.—p. 127.
Clinical and Experimental Studies on Urobilin Bodies: IV. Reticulo-Endothelial System and Urobilin Bodies. M. Oshima.—p. 137.
Id.: V. Relation Between Urobilin Bodies and Kidneys. M. Oshima. —p. 141.
Pigment Excretion in Experimental Hepatic Disturbances: III. Experiments with Schistosomum Japonicum. E. Wakabayashi.—p. 147.
Id.: IV. Experiments with Distomum Spathulatum. E. Wakabayashi. —p. 150.
Experimental Studies on Fats and Lipoids in Blood in Hepatic Disturbance. Report I. M. Nakatsuka.—p. 153.
Id.: Report II. M. Nakatsuka.—p. 160.

Excretion of Bromine and Iodine from Liver.—Maruno states that the bile of normal rabbits does not contain bromine or iodine. The excretion of bromine and iodine in the bile in rabbits to which various kinds of bromine and iodine compounds were given was not small compared with that in the urine. In general, organic compounds are more easily excreted in the bile and urine than inorganic ones. The excretion of inorganic compounds differs according to the kind of the cations. Chlorine is most easily excreted in the bile, then comes bromine, and the excretion of iodine is the weakest. The excretion of iodine in the bile differed according to the site of administration; it was greatest in the case of intravenous injection. On repeated oral administration it increased with the number of days of administration but the degree of the increase was not marked. The fact that iodine appears in the bile is of great significance in the prevention of gallstone formation, because it has been proved that iodine increases the stability of cholesterol, probably the main component of gallstones.

Influence of Cholagogues and Functional Disturbance of Liver on Iodine Excretion from Liver.—In experiments on rabbits, Maruno noted that iodine excretion was accelerated by sodium glycocholate and taurocholate, rabbit bile, and dextrose. Liver injury due to phosphorus, chloroform and compression of the liver disturbed the excretion of iodine, while blockade of the stellate cells had no effect. These facts indicate that iodine excretion is accomplished by the liver parenchyma cells. It is interesting to note, in connection with the prevention of gallstone formation, that iodine, the action of which is to increase the stability of cholesterol, probably a main component of gallstones, is excreted in the bile by the parenchyma cells of the liver, and that the excretion is accelerated by several kinds of cholagogues and dextrose.

Influence of Poisons on Autonomic Nervous System.—Saiki summarizes the results of experiments on the influence of the autonomic nervous system on the bilirubin excretion from the liver as follows: 1. Stimulation of the sympathetic nerves shows little effect. 2. Paralysis of the parasympathetic nerves exhibits an inhibitory influence. 3. A greater tension of the parasympathetic system promotes the influence in a remarkable degree. 4. The influences of the tension of the autonomic nervous system on the excretion of the bilirubin commonly existing in an animal body from the liver are similar to those in the case of organic dyestuffs as studied by Takano. Other investigators have observed a marked increase of calcium and cholesterol in both concentration and amount in the bile after a stimulation of the vagus nerve. These relationships correspond with the author's observations regarding bilirubin. Not only does the spasm of the bile duct as the result of the stimulation of the vagus cause gallstone formation but also these quantitative changes in the elements of the bile due to the stimulation of the vagus are of great significance in their formation.

Intravenous Injection of Dextrose.—According to Saiki, the influence of dextrose on the excretion of bilirubin from the liver is accelerated by the intravenous injection of an appropriate amount (5 cc. per kilogram of animal body weight) of dextrose solution but is inhibited by an injection of an excessive amount (10 cc. per kilogram of body weight). Recently he observed a patient who had had serious and chronic jaundice for a long time. She became better only after several injections of dextrose but grew worse again when it was not given. In comparing these clinical and experimental observations, the author considers dextrose to be important in the treatment of jaundice.

Bulletins et Mém. de la Soc. Nat. de Chirurgie, Paris

57: 733-790 (May 30) 1931

Cancer of Common Bile Duct. H. Mondor.—p. 734.
*Metatraumatic Osteomas in Inner Paracondyloid Region of Femur. R. Leriche.—p. 737.
*Experimental Duodenal Ulcer Produced by Diversion of Bile. G. Lœwy.—p. 739.
Postoperative Mental Disturbances. Makékaric.—p. 753.
Results of Use of Disappearing Catheter Between Hepatic Canal and Stomach. B. Desplas.—p. 770.
*Marked Retrogression in Stenosing Cancer of Pylorus After Gastro-Enterostomy Complicated by Hemorrhagic Pleurisy. L. Chevrier and J. Dalsace.—p. 774.
Posterior Dislocation of Shoulder. J. Caraven.—p. 776.
Acute Sigmoidal Volvulus with Definite Hypochloremia: Treatment with Hypertonic Solution of Sodium Chloride. L. Courty and M. Paget. —p. 779.

Metatraumatic Osteomas.—In reporting his investigations on the subject of metatraumatic osteomas in the inner paracondyloid region of the femur, Leriche refers to his textbook on pathologic physiology. He states that one should remember that every traumatism without fracture or without tearing off of the periosteum may secondarily give rise to an ossification near the point traumatized. Therefore one should practice systematic roentgen examination of sprains and other traumatisms, not only immediately after the accident but five or six weeks later. This secondary roentgen examination is at least as important as the primary one. The author states that the proper treatment of true sprains consists in early and repeated infiltration of the traumatized ligaments with a solution of procaine hydrochloride.

Experimental Duodenal Ulcer.—On the basis of his numerous experiments and a review of the literature of the subject, Loewy draws the following conclusions: The isolated diversion of bile suffices to create in a normal intestinal tube, unmodified in its continuity and in its permeability, some inflammatory lesions of duodenitis. In the absence of bile the duodenal mucous membrane seems to lose its resistance to the corrosive action of the gastric chyme. The biliary diversion only slightly modifies the gastric chemism. The ulcer, which is produced in an inconstant manner and after a variable length of time, is located in the first few centimeters of the duodenum. In the

absence of primary arterial lesions the transformation of the initial inflammatory lesions of the duodenal mucous membrane into a chronic ulcer might be connected, according to the experimental observations of Mann and Morton, with the mechanical action of the passage of the gastric chyme. The clinical significance of these investigations is the possibility of formation of duodenal ulcer in patients with complete external biliary fistula.

Retrogression of Cancer of Pylorus.—Chevrier and Dalsace report a case of cancer of the pylorus in a woman, aged 52, in whom almost complete retrogression of the growth occurred following a gastro-enterostomy that was complicated by a hemorrhagic pleurisy. As shown by the subsequent course of the pleurisy, it was not of neoplastic origin. The authors call attention to the fact that, although the appearance of a hemorrhagic pleurisy in a patient with a pyloric neoplasm usually indicates a metastasis and conraindicates resection of the primary tumor, exceptionally the effusion is the result of an associated condition, as tuberculosis or infarct of the lung.

Journal d'Urologie Médicale et Chirurgicale, Paris

31: 433-536 (May) 1931

*Gonorrhea: Local Treatment with Substitutes of Potassium Permanganate. J. Janet.—p. 433.
Pyelography by Intravenous Route. E. Dragonas.—p. 446.
*Late Hereditary Syphilis of Bladder. B. Valverde.—p. 453.
Tumors of Bladder. I. S. Temkine.—p. 463.

Treatment of Gonorrhea.—Janet gives the principal indications for the use of various substitutes of potassium permanganate in the treatment of gonorrhea. For the abortive treatment he recommends 20 per cent solution of mild silver protein. If in the course of this treatment the gonococci reappear, it indicates that the abortive treatment failed. If the gonococci are numerous and the purulent secretion is profuse, one should employ lavages of solution of potassium permanganate followed by an injection of a solution of mild silver protein; if the gonococci are not numerous and the amount of discharge is extremely small, it is well to increase the treatment by introducing into the urethra a medicated pencil containing 1 per cent of mild silver protein. If the abortive treatment fails during the period of observation and if the gonococci begin to reappear, there is a choice between two methods: One may continue the abortive treatment supplemented or not by the introduction of a medicated pencil containing 1 per cent of mild silver protein, or one may perform a series of lavages with solution of potassium permanganate. The author believes that the first method gives the earliest results. In typical gonorrhea beyond the abortive period, the lavages with potassium permanganate constitute the treatment of choice; however, the addition of mercuric oxycyanide to the solution of potassium permanganate rapidly clears up urine that has been cloudy for a long time. In gonorrhea that has already been treated irregularly for a long time with variable doses of solution of potassium permanganate, one should abandon the potassium permanganate and replace it with mercuric oxycyanide alone, provided the latter does not increase the suppuration. In case this substitution does not bring results, one should terminate each lavage by the introduction of a medicated pencil containing from 1 to 5 per cent of mild silver protein, provided it does not irritate the urethra. Finally, one should search for a focus of infection that is often located in the diverticulum formed by Guérin's fold, in all cases in which the discharge reappears after the treatment is discontinued because of apparent cure. The injection of solution of mild silver protein into this valve quickly disinfects it.

Late Hereditary Syphilis of Bladder.—Valverde reports four cases of late hereditary syphilis of the bladder and gives the symptomatology of this ailment. He describes for the first time (according to his bibliographic investigations on the subject) a new chapter in the pathology of the urinary tract; namely, late hereditary syphilis of the bladder. The passage of *Spirochaeta pallida* from the blood to certain organs of these patients where they become localized or fixed for a variable length of time in the latent condition that is well known with regard to other infections as tuberculosis, malaria and gonorrhea, explains the delayed appearance of heredosyphilis, constituting the late forms of the disease. In the diagnosis of late hereditary syphilis of the bladder the main element is cystoscopy. Besides the general symptoms of syphilis, the past history, the positive results of the antisyphilitic treatment and the urinary symptoms, a clinical manifestation was observed in all four cases of this disease which he observed, namely, ulceration of the bladder mucosa. Cystoscopy is not only of diagnostic but also of prophylactic value because it leads to the treatment of these latent and late forms of syphilis, thus eliminating the possibility of serious consequences, such as vesicorectal and vesicovaginal fistulas. The clinical picture of late heredosyphilis of the bladder confirms a principle already established in the domain of late hereditary syphilis, i. e., that the typical lesion of this entity is ulceration, a fact that is observed frequently in the cutaneous manifestations of the disease. In the four cases observed, antisyphilitic treatment consisted in injections of mercury and bismuth preparations that gave immediate and permanent results, producing healing and disappearance of the ulcerations as well as of the other bladder symptoms. The cystoscopy should be performed systematically in the genito-urinary department, because it is capable of revealing in latent forms of syphilis as well as in other diseases clinical aspects of the greatest importance, of value not only from the standpoint of the patient's health but also from a scientific point of view.

Nourrisson, Paris

19: 145-208 (May) 1931

Hypervagotonia. H. Lemaire.—p. 145.
pH of Stools in Healthy and in Sick Infants. H. Dorlencourt and R. Lavaudon.—p. 147.
*Inorganic Phosphorus of Cerebrospinal Fluid in Infants. A. Iancou and Marie Benetato.—p. 154.
*Infantile Eczema: Enterococcus in Pathogenesis of Eczema-Like Cutaneous Reactions. H. and Mme. H. Montlaur.—p. 161.
Craniotabes: Influence of Season on Its Development. A. B. Marfan.—p. 176.
Ocular Lesions Produced in the New-Born During Delivery. M. S. Wenger.—p. 180.

Inorganic Phosphorus of Cerebrospinal Fluid.—Iancou and Benetato determined the amount of inorganic phosphorus in the cerebrospinal fluid in thirty-four infants with various diseases. The minimal limit of inorganic phosphorus in the cerebrospinal fluid of twenty-eight of the infants aged from 2 weeks to 1 year was 1.25 mg. per hundred cubic centimeters; the maximal limit was 2.27 mg.; the average, therefore, was 1.77 mg. In fourteen cases the content of inorganic phosphorus exceeded this average amount. Four of the infants with an increased amount of phosphorus had congenital syphilis. None of the infants in whom the inorganic phosphorus content of the cerebrospinal fluid was above the average developed meningitis. The Bell-Doisy colorimetric method, as modified by Briggs, was employed in the phosphorus determinations.

Infantile Eczema.—The Montlaurs studied 118 infants with various eczema-like cutaneous eruptions with regard to the rôle of the enterococcus in the pathogenesis of these conditions. They state that a certain number of cutaneous reactions that are considered as infantile eczema present a common bacterial etiology of digestive origin and are observed mostly in infants aged from 1 to 5 months. These dermatoses, of which the so-called seborrheic eczemas are the most striking examples, always begin on the buttocks. The initial lesion represents one of the types described by Jacquet as infantile dermatitis. At this stage the condition is a bacterial dermo-epidermitis. Bacteriologic investigations reveal constantly the presence of the enterococcus in the epidermal scales. Coprologic examination reveals pullulation of the enterococcus, and exaggeration of the normal fermentative process (increase in the amount of organic acids) in breast-fed infants. This exaggeration seems to be absent in bottle-fed babies. The epidermis, constantly soiled by direct contact of the stools, cannot defend itself against a highly virulent enterococcus. The organism produces on the buttocks a dermo-epidermitis. The eczematids that appear spontaneously or after an intradermal injection of an antienterococcal vaccine are the expression of the reaction of the skin to the bacterial toxins; they must be considered as a phenomenon of sensitization. The digestive disorders that accompany the so-called eczema are probably caused by a hepatopancreatic deficiency in which syphilis may play a part. Antienterococcal vaccination by intradermal injections often brings on a rapid cure of the dermatosis as well as an amelioration of the digestive symptoms.

Annali Italiani di Chirurgia, Naples

10: 469-634 (May 31) 1931

Presacral Coccygeal Tridermoma Associated with Grave Anomalous Development of Lower Urinary Passages. V. Travaglini.—p. 469.
Clinical and Experimental Researches on Lipuria. M. Romeo.—p. 516.
Effects of Omental Investment of Intestine Separated from Mesentery. G. Figurelli.—p. 532.
Acute Osteomyelitis of Pubic Bone. V. lo Cascio.—p. 551.
Rare Localization of Echinococcus Multilocularis in Mammary Gland. M. Canavero.—p. 566.
Changes in Liver Due to Ligation of Hepatic Artery. L. Carmona.—p. 582.

Archivio di Ostetricia e Ginecologia, Naples

18: 255-317 (May) 1931

*Local Intraparenchymatous Vaccination in Treatment and in Prophylaxis of Puerperal Infections. F. Spirito.—p. 255.
Researches on Bacteremia Post Partum. M. Nizza.—p. 263.
Urinary Hydrogen Ion Concentration in Pregnancy and Puerperium. T. Meneghini.—p. 285.
Experimental Researches on Possibility of Attachment and of Functioning of Autoplastic and Homoplastic Transplants of Fallopian Tube. F. Spirito.—p. 301.

Intraparenchymatous Vaccination in Treatment of Puerperal Infections.—Spirito expresses himself favorably in regard to local vaccinal therapy in inflammations of the reproductive organs. He recommends his method of vaccinal treatment in puerperal infections. It consists of intraparenchymatous injections of polyvalent vaccines into the substance of the uterus.

Archivio Italiano di Chirurgia, Bologna

29: 1-115 (May) 1931

*Periarterial Decortication by Leriche Method and Autoplastic and Homoplastic Grafts of Skin. A. Bertocchi.—p. 1.
*Primary Chronic Perinephritis Dolorosa. I. Barcaroli.—p. 37.
Right Inguinoscrotal Hernia, Torsion of Omentum, Postoperative Tumor of Inguinal Region. A. Catterina.—p. 59.
Treatment of Certain States of Vascular Insufficiency in Lower Limbs, with Especial Reference to Suprarenalectomy and to Removal of Ganglions of Lumbar Sympathetic. A. Chiasserini.—p. 78.
Riedel's Disease. M. Prati.—p. 93.

Periarterial Decortication and Autoplastic Grafts of Skin.—Bertocchi, experimenting with rabbits, found that autoplastic skin grafts become attached in a rapid and complete manner to an area supplied by a "decorticated" artery. In the same area homoplastic grafts sometimes fall off and sometimes are enclosed beneath the regenerated epithelium of the host, serving at least as guides for the reconstruction of the loss of substance undergone in preparing the way for its reception.

Primary Chronic Perinephritis Dolorosa.—Barcaroli gives the clinical histories of eight patients who presented a neuralgic syndrome without hematuria and signs of nephritis. On the basis of the clinical symptomatology that they presented and the anatomopathologic observation made during the intervention, he gives his conceptions of the etiology, pathogenesis and classification of the clinical picture. He considers that in the cases coming under his observation the capsular tissues were the primary seat of the morbid process.

Clinica Pediatrica, Modena

13: 349-432 (May) 1931

*Cardiocirculatory Changes and Suprarenals in Measles. G. Macciotta.—p. 349.
Appearance in Certain Infectious Diseases, of Türck's Irritation Leukocytes in Blood of Children. P. Gorini.—p. 387.
Constitutional Insufficiency in Relation to Hematopoiesis in Children. F. Zibordi.—p. 405.

Changes in Suprarenals and in Circulatory System in Measles.—Macciotta recalls, in discussing the causes of the high mortality from measles, that the cardiocirculatory system, the suprarenal system and the hepatic system are not usually considered as being damaged by the measles toxin. He cites three cases in which the measles infection had caused marked heart changes, with modifications of its dimensions, bradycardia with changes in the atrioventricular stimulus, terminal development of Morgagni-Adams-Stokes manifestations, signs of profound suprarenal insufficiency, and a fatal issue. The scarcity of myocarditic lesions and the behavior of the oculocardiac reflex in twelve cases cause him to assume the possibility of a vagus excitation, provoked by a selective localization of the measles toxins. The possibility of an acute dilatation of the heart is considered in another case described, in which the dilatation had doubtless provoked, through a vagus stimulation, pertussoid manifestations and bradycardia. The arterial pressure appears (especially in the exanthematic period) commonly diminished. In all the more severe cases of measles, some suprarenal involvement was manifest which found its anatomic basis in the lesions prevailingly hemorrhagic and observed in five cases—affecting chiefly the medullary substance. Also the liver may be involved—functionally and anatomically, as the author will bring out in a later article. Acidotic changes accompany grave toxemias resulting from measles, associated especially with the production of acetones, as the result of a changed metabolism of carbohydrates, with which suprarenal and hepatic dysfunctioning is often associated.

Rivista di Patologia e Clin. della Tuberculosi, Bologna

5: 349-428 (May 31) 1931

The Filtrable Tuberculosis Virus. A. Sega and A. Brustolon.—p. 349.
Researches and Observations on Filtrability of Paratuberculosis Bacilli. G. Capuani.—p. 370.
Clinical Aspects of Diffuse Pulmonary Tuberculosis Ascribable to Formation of Assmann Focus. V. de Benedetti.—p. 382.
*Artificial Pneumothorax in Child. E. Tarantola.—p. 389.
Spontaneous Pneumothorax in Persons Clinically Healthy. V. Lubich.—p. 397.

Artificial Pneumothorax in Child.—Tarantola describes the cases of pneumothorax observed in a sanatorium for children. The indications for pneumothorax in the child are the same as in the adult. The intervention should be, if possible, early, to combat the rapidly developing forms, but he thinks it is well to apply pneumothorax also in cases with bilateral lesions, for he has observed a favorable action of pneumothorax on the lesions of the opposite lung. The insufflations should be small and frequent. The pressure should ordinarily reach, or exceed slightly, zero if the insufflation is made in horizontal decubitus. If, however, the decubitus is lateral, somewhat lower pressures should be employed. If the treatment is carried out in this manner, there is only a moderate shifting of the mediastinum. Pleuritis is a rather frequent complication but usually it retrogresses. The immediate results in the cases observed were always good and sometimes excellent. The cases were too recent to speak of the remote results.

Prensa Médica Argentina, Buenos Aires

17: 1743-1778 (May 30) 1931. Partial Index

*Pleural Syndrome: Axillary Pleurisy Following Collapsotherapy in Acute Pulmonary Tuberculosis. A. Vitón.—p. 1743.
*Determinations of Urea Content of Saliva. A. M. Centeno.—p. 1751.
Relation Between Clinical and Anatomicopathologic Forms of Chronic Cholecystitis. A. Galíndez and J. M. A. Delrío.—p. 1754.
Serous Apoplexy Following Arsenic Therapy: Two Cases. S. J. Catuogno and J. I. Sacón.—p. 1768.

Axillary Pleurisy Following Collapsotherapy.—Vitón describes under the name of axillary pleurisy a form of localized effusion which develops as a complication of collapsotherapy induced by artificial pneumothorax in acute pulmonary tuberculosis. He has observed seven cases of the condition (four on the left side and three on the right side). This form of pleurisy may develop either as a phenomenon of resorption of the effusion in the pleural cavity in pleurisies following collapsotherapy, or as a primary pleural reaction to collapsotherapy, in which case there is a small effusion or no effusion at all in the pleural cavity. In axillary pleurisy as in effusion in the pleural cavity, following collapsotherapy, the fluid has the same cytologic, chemical and physiologic characteristics as in tuberculous pleurisy. Axillary pleurisy is not grave, does not impair the curative effect of pneumothorax and does not exert an unfavorable action on the lungs.

Determinations of Urea Content of Saliva.—Centeno made determinations of the urea content in the saliva and in the blood of forty patients with various pathologic conditions. The samples of the blood and the saliva were taken simultaneously from the patient during a period of fasting. The technic followed by the author is described in detail. The results of two of the patients did not appear in the general

results for the entire group: One of these patients received an injection of pilocarpine and the author states that the concentration of urea both in the blood and in the saliva increased under the influence of the pilocarpine and in the other patient there was some local condition of his mouth which caused the saliva to be bloody. Out of the total number of the remaining thirty-eight patients the results between the indexes of urea in the blood and in the saliva were the same in fourteen cases, that is, 36.8 per cent; there were slight differences of about 0.1 Gm. in thirty cases (78.9 per cent), of about 0.2 Gm. in thirty-three cases (86.8 per cent) and of about 0.3 Gm. in thirty-five cases (92.1 per cent). The author reaches the following conclusions: The urea content of the saliva is equal or nearly equal to that in the blood. In pathologic conditions the urea content of the saliva increases proportionally to that in the blood. The determination of the urea content in the saliva constitutes a practical method of simple technic and of satisfactory results which should be resorted to for clinical diagnosis in the cases in which the withdrawal of blood presents some difficulties or contraindications.

Deutsche medizinische Wochenschrift, Berlin

57: 919-962 (May 29) 1931

Special Form of Benign, Chronic Miliary Tuberculosis. W. Nonnenbruch.—p. 919.
*Bovine Tubercle Bacilli as Cause of Tuberculosis in Human Beings. B. Lange.—p. 921.
"Pulmonary Congestion" as Form of Influenzal and Infectious Toxic Pulmonary Disorders. P. Kaczander and B. Rudin.—p. 925.
Pulmonary Stasis, Particularly Its Roentgen Diagnosis. E. Schroeder. —p. 927.
Causes of Failure of Sauerbruch-Herrmannsdorfer-Gerson Diet in Pulmonary Tuberculosis. K. Klare.—p. 928.
Morphine Withdrawal in Pulmonary Tuberculosis. A. Langelüddeke. —p. 930.
Significance of Vaccination with B C G for Crusade Against Tuberculosis. A. Calmette.—p. 932.
Diagnosis and Therapy of Tuberculosis. O. Steinmeyer.—p. 935.
*Differential Diagnostic Difficulties in Actinomycosis of Lungs. P. Siebert—p. 936.
*Late Injuries After Phrenic Exeresis. G. Roesler.—p. 937.
Artificial Pneumothorax and Tuberculosis of Larynx. A. M. Margulies. —p. 937.

Bovine Tubercle Bacilli as Cause of Tuberculosis in Man.—Lange points out that the infection of human beings with bovine tubercle bacilli is not as frequent as that with the human types of bacilli. However, recent investigations by Griffith, Munro and by the "Institut Robert Koch" in regard to bovine tubercle bacilli as a cause of pulmonary tuberculosis in human beings has proved that the widely accepted opinion of the extreme rarety of "bovine" pulmonary tuberculosis is no longer tenable. Of 1,700 tuberculous patients examined, bovine infections were found in nearly 2 per cent of the cases. And the author is convinced that, if persons who have come in contact with tuberculous cattle were examined, the percentage of bovine infections would be much higher. The reason that tuberculosis caused by bovine bacilli is generally less virulent than that caused by human types of tubercle bacilli is evidently the fact that the form caused by bovine tubercle bacilli usually originates in the digestive tract, in organs with a greater resistance than the highly susceptible respiratory organs, the lungs, which are generally attacked by the human types of the bacillus, but it is no proof for a lesser pathogenicity of the bovine type. The slight results obtained with subcutaneous inoculation of living bovine bacilli into adults is likewise no proof of their harmlessness, because there is no possibility of comparison with the action of subcutaneously injected human tubercle bacilli. The tendency to decrease in virulence in the human organism or in artificial culture mediums is evidently more pronounced in bovine strains of the tubercle bacillus than in the human strains. The author admits that even if the results of recent investigations are taken into consideration one still may adhere to Koch's opinion that the crusade against tuberculosis should be directed primarily against transmission from one person to another. On the other hand, he thinks that Koch went too far when he considered the infection with bovine bacilli as harmless. The author maintains that, because there is no proof of the lesser pathogenicity of the bovine bacillus, tuberculosis in cattle should be combated not only for the interest of cattle raisers and for economic reasons but also for the sake of public health.

Differential Diagnostic Difficulties in Actinomycosis of Lungs.—Siebert reports a case of actinomycosis of the lungs. The clinical course and the roentgenogram indicated at first a pulmonary tuberculosis and later a mediastinal tumor. The strong fetid odor that became manifest is considered by the author as an especially characteristic symptom of pulmonary actinomycosis.

Late Injuries After Phrenic Exeresis.—Roesler observed several patients in whom, following phrenic exeresis on the left side, there developed disturbances such as accumulation of gas in the stomach and in the colon and displacement of the heart and of the mediastinum. In less severe cases the disorders become manifest in the form of neurasthenic symptoms, and their connection with phrenic exeresis may often not be recognized. The author further states that Bittorf likewise noted several patients, who, following phrenic exeresis on the left side, developed gastrocardiac symptoms. Therapeutic measures such as diets, lying on the left side, purgatives and cardiac sedatives had no lasting effect on the condition. After phrenic exeresis on the right side the changes are less severe and less characteristic. On the basis of these observations the author reaches the conclusion that phrenic exeresis, especially of the left side, should not be done unless it seems absolutely necessary, and he thinks that pneumothorax treatment should always be tried first.

Folia Haematologica, Leipzig

44: 125-259 (May) 1931

*Blood Picture of Lymphogranulomatosis. G. Straube.—p. 125.
*Agranulocytic Blood Picture: New Classification of Certain Blood Diseases. C. Oestreich.—p. 137.
Hematologic Picture of Metastatic Tumors. M. S. Rawitsch and B. B. Warschawskaja.—p. 150.
Catalase Action of Leukocytes. K. Iglauer.—p. 159.
Severe Infectious Atypical Anemia. K. Franke and H. Becker.—p. 169.
*Inclusion Bodies in Leukocytes in Leukemia. M. G. Bohrod.—p. 179.
Experimental Proteohemotoxic Anemias. A. Nyfeldt.—p. 184.

Blood Picture of Lymphogranulomatosis. — Straube points out that in regard to the diagnostic value of the blood picture of lymphogranulomatosis the opinions are still divided. Some authors assert that there is a typical blood picture and others maintain that there is not. Therefore the author made careful studies on twenty-one patients. In eleven cases, he observed a lymphopenia that was combined in five cases with leukocytosis, in three cases with leukopenia, in one case with varying behavior of the leukocytes, and in three cases with normal values. In three patients, he noted a lymphocytosis, once with leukopenia, once with varying behavior of the leukocytes and once with normal values. In seven of the patients, normal numbers of lymphocytes were found. The author thinks that for the diagnosis of lymphogranulomatosis the following blood pictures are of especial value: In the beginning form of lymphogranulomatosis a combination of lymphopenia with normal values of leukocytes; in complications, lymphopenia with leukocytosis, and, in the generalized and abdominal forms of the disease, lymphopenia with leukopenia. The author comes to the conclusion that there is no unique and typical blood picture for lymphogranulomatosis and that therefore it is not possible to base a diagnosis only on the results of a hematologic examination. However, he admits that the hemogram is a diagnostic aid in addition to the other symptoms of lymphogranulomatosis and that it differentiates lymphogranulomatosis from the various forms of leukemia.

Agranulocytic Blood Picture.—Oestreich reports the case of a patient with tabes dorsalis in whom, following antisyphilitic treatment with acetarsone, the leukocyte picture, and especially that of the granulocytes, was markedly impaired. It was surprising that, despite the severe thrombopenia, a hemorrhagic diathesis did not develop nor was the coagulation time prolonged. From the clinical picture of agranulocytosis the case differed in that necrotic processes of the mucous membranes and icterus were absent, and in the hemogram it differed by involvement of the platelets. This case as well as several reports in the literature convinced the author that antisyphilitic therapy with compounds of benzene and arsenic is the cause of this agranulocytic disorder. He warns against the generally recommended arsphenamine therapy of agranulocytic diseases. He maintains that treatment with arsphenamine has never cured agranulocytosis.

Inclusion Bodies in Leukocytes in Leukemia.—In a case of acute leukemic myelosis, Bohrod found inclusion bodies in 18 per cent of all the white blood cells. The myelocytes and myeloblasts were involved to a greater extent than the mature neutrophil cells; all the eosinophils contained numerous inclusions. The inclusions were highly refractile, homogeneous, and unstained by fat stains, iodine, or the common acid or basic dyes. They were insoluble in all the common solvents. Because of the high refractive index, which is close to that of balsam, it was necessary to observe these inclusions in dry systems in unmounted smears. The etiology of these inclusions and their chemical nature are unknown.

Klinische Wochenschrift, Berlin

10: 1057-1104 (June 6) 1931

Intestinal Auto-Intoxication. E. Becher.—p. 1057. C'cn.
*Influence of Female Sex Hormone and of Hormones of Anterior Lobe of Hypophysis on Structure of Hypophysis of Rats and Mice. B. Zondek and W. Berblinger.—p. 1061.
*Tonsil Problem. T. J. Bürgers and W. Wolffheim.—p. 1064.
Investigations on Calcium Retention in Growing and in Adult Organism. E. Hesse.—p. 1067.
Serodiagnostic Investigations on Tuberculosis. E. Witebsky, R. Klingenstein and H. Kuhn.—p. 1068.
Thyroid and Carbohydrate Metabolism. H. L. Popper and S. Hirschhorn.—p. 1071.
Alleged Nontoxicity of Ergosterol Preparations Irradiated with Filtered Rays. F. Laquer.—p. 1072.
Insufficiency of Liver with Edema Improved by Liver Therapy. A. Schrumpf.—p. 1074.
Typhus Skin Reaction and Its Similarity to the Dick Test. L. Fleck and I. Hescheles.—p. 1075.

Influence of Female Sex Hormone and of Hormones of Anterior Lobe of Hypophysis on Hypophysis of Rats.—Zondek and Berblinger point out that the hormones of the anterior lobe of the hypophysis are the superordinated, general, sex hormones. They are primary, while the sex hormones proper are secondary. The follicle maturation hormone produced by the anterior lobe of the hypophysis effects in the follicle apparatus of the ovary the formation of the female sex hormone (folliculin); the luteinization hormone produced in the anterior lobe of the hypophysis causes in the corpus luteum the formation of the corpus luteum hormone. The functional rhythm of the anterior lobe of the hypophysis determines the rhythm of the sexual function and determines also the proliferation and functioning of the uterine mucosa and thus creates optimal conditions for the nidation of the fertilized ovum. Without hormones of the anterior lobe there would be no sex hormones. However, there are yet other correlations between the anterior lobe of the hypophysis and the sex glands. The ovarian hormone, produced under the influence of the follicle maturation hormone of the hypophysis, may, after it has once developed, react on the anterior lobe of the hypophysis. It may act as stimulator as well as inhibitor of the anterior lobe. In order to determine whether the administration of hypophyseal or of sex hormones causes morphologic changes in the cell apparatus of the anterior lobe of the hypophysis, the authors made tests on castrated and on infantile rodents. On the basis of their tests they reach the following conclusions: 1. The morphologic changes in the anterior lobe of the hypophysis which are produced by castration are hardly at all influenced by prolonged administration of either the female sex hormone or the hormones of the anterior lobe of the hypophysis. 2. One administration of the follicle maturation hormone that is produced by the hypophysis effects on the anterior lobe of the hypophysis of the infantile animal a slight degree of maturation. 3. Repeated administration of follicle maturation hormone and of the luteinization hormone (both hypophyseal hormones) effect a marked ripening of the anterior lobe of the hypophysis of the infantile animals.

Tonsil Problem.—A review of the various factors involved in the tonsil problem convinced Bürgers and Wolffheim that many factors are as yet not fully understood. Following a discussion of the bacteriology of the pharyngo-oral cavity, they state that the bacteriology of healthy and of diseased tonsils as well as the question of the pathogenicity of the micro-organisms is still not fully understood. They consider it of great importance to detect a relationship between the various forms of tonsillitis and the micro-organisms that are found during these diseases in the coatings of the tonsils, in the lacunar secretions and in the tonsillar plugs. They think that certain serologic reactions could serve as indicators for such correlations. Of the various methods of specific immunity tests, three were tried: dermoreaction, precipitation and phagocytosis. By intracutaneous vaccinations, analogous to the Dick test, only noncharacteristic, positive reactions were obtained, but they are probably only of an allergic nature and do not permit conclusions in regard to the specificity of the micro-organism. The precipitation reactions gave no indications for a definite regularity and in their present form they therefore do not seem suitable for these purposes. In tests on the phagocytosis (opsonic action) the authors call attention to the fact that the leukocytes show a different behavior toward bacteria. When a bacterial emulsion is mixed with blood and after some time those leukocytes are counted that have ingested bacteria, their percentage of the total is termed the phagocytic number, a low number indicating unfavorable conditions (low protective power, deficiency of opsonins). The results of the tests on phagocytosis are summed up as follows: In acute tonsillitis continuous tests revealed an increase of the phagocytosis, which paralleled the course of recovery and the decrease of the fever. Tests several weeks after recovery from the attack revealed a marked decrease of the phagocytosis compared to the acute stage. In cases of chronic tonsillitis the authors studied the influence of the causal therapy (tonsillectomy) on the specific protective reaction, the phagocytosis. Here there were likewise two reaction types. Usually the phagocytic number is low before the operation and it increases after the operation, or it is high before the operation and decreases following it. The latter condition is most frequently noted in conditions with high fever (sepsis, acute bronchitis). From this the authors conclude that the phagocytosis test in combination with the other symptoms is extraordinarily valuable in the diagnosis of chronic tonsillitis, and it also indicates whether a systemic disease has a causal relationship to a tonsillar focus; thus it indicates whether tonsillectomy is necessary or not. If the phagocytic number is low, considerably less than 50, the protective power of the organism is low and there is a deficiency of opsonins. In these cases tonsillectomy is advisable, for in these cases the phagocytic number usually shows an increase several weeks after the operation. However, if the phagocytic number is around 50 one may assume that either there is no connection between the tonsillar focus and the systemic disease or that the opsonin content is sufficient to combat the infection. The same conditions exist when the process is localized. In such cases tonsillectomy is not necessary. However, it is advisable to keep the patient under constant observation for the condition may change rapidly.

Medizinische Klinik, Berlin

27: 795-830 (May 29) 1931

Newest Vaccination Experiments for Treatment of Protracted, Complicated Gonorrhea. Frieboes.—p. 795.
Rational Therapy of Chronic Gonorrhea of Uterine Cervix and Adnexa by Means of Living Vaccine. A. Loeser.—p. 796.
Tuberculosis and Pregnancy. J. Novak.—p. 798. C'td.
Atypical Forms of Acute Myocardial Infarct. L. Hahn.—p. 799.
Spondylitis Deformans (Bechterew-Strümpell's Disease) with Especial Consideration of War Injuries. A. Wolff-Eisner.—p. 801.
Use of Radium in Incretory Disturbances Especially in Exophthalmic Goiter. Gudzent.—p. 803.
*Treatment of Hay-Fever. P. Schmidt.—p. 805.
Rare Forms of Masked Tuberculosis. F. Paula.—p. 806.
*Toxicity of Spring Turban-Top (Helvella Esculenta). L. Welsmann.—p. 809.

Treatment of Hay-Fever.—Schmidt reports a therapeutic method for hay-fever which he found helpful in his own case. In the course of several years he had tried nearly all the treatments that have been recommended, such as injections of calcium or of an ephedrine preparation, vaccination with pollen extracts, medication with iodine preparations, vegetarian and other special diets, diathermy treatment of the nose and other internal and external remedies, but without success. He also made the cutaneous tests with all the allergens of the diagnostic packages, but again without success. For the several preceding years he had undergone systematic treatments with the quartz lamp about a month before the beginning of the hay-fever period. He thought that this roborant measure would, by its antispasmodic effect, influence the weakness of the sympathetic nervous

system, to which allergic patients are generally subject. He gained the impression that the usual irradiation without a marked erythema action lessens the severity of the symptoms somewhat, but he never noted a decisive success. During the last year he followed this usual quartz lamp treatment with irradiations of greater intensity, which produced a marked erythema. He commenced the treatments after the slight erythema of his usual quartz lamp treatments had disappeared, about a week before the onset of the pollinosis. The daily irradiations lasted from five to seven minutes and were given alternatingly on the chest and back and also on the face. After the erythema had disappeared, a new series was given. The result was favorable. In comparison to other hay-fever patients, who had not undergone this treatment, his symptoms were slight. The result became still better after he had been exposed to the effective ultraviolet rays during a paddle tour on bright, sunny days. He was nearly free from symptoms, even during a long railroad trip, when otherwise the symptoms are especially severe. The effectiveness of this treatment the author ascribes to the quieting, antispasmodic effect of the ultraviolet rays, to the reduction of the tonus of the sympathicus, to the increased calcium content of the blood, and also to the resorption of the decomposition products of protein that were produced by the irradiations. The slight increases in the temperature following the irradiations are a proof of this parenteral protein action. As symptomatic measures the author recommends restriction of meat, large quantities of fruits and vegetables, no hot drinks and especially no sudorific or alcoholic drinks, and little smoking. He also gives a prescription for eye drops and one for internal medication. The author does not claim priority for his ultraviolet treatment. Having been unable to review the literature on this phase of the subject, he does not know whether perhaps some one else has recommended a similar treatment, but he merely wishes to recommend it for its practical results. He likewise has no intention to discredit the desensitization treatment, which he considers as the only specific, causal therapy. However, he thinks that as yet the difficulties of the desensitization treatments are too great to warrant its general application.

Toxicity of Spring Turban-Top (Helvella Esculenta).—Welsmann points out that it has long been known that the helvellic acid contained in turban-tops is poisonous, but it was generally assumed that it could be extracted by boiling and by removing the water in which the mushrooms had been cooked. However, on the basis of observations the author reaches the conclusion that this is not always effective in counteracting the toxicity, for poisonings have been noted even when these precautions had been taken. It is possible that turban-tops contain another toxic substance, which is not removed or destroyed by the cooking, or that those grown during moist and warm weather are especially poisonous, or that the toxicity varies in different years, or that some persons are more susceptible to the poison than others. The author thinks that there is no absolutely reliable method for detoxicating the turban-top, and he advises that the marketing of this mushroom for eating purposes should not be permitted. He also discusses the possibilities of serum therapy in mushroom poisoning.

27: 831-868 (June 5) 1931

*Unrestricted Diet in Diabetes. K. Stolte, H. Hirsch-Kauffmann and E. Schädrich.—p. 831.
Tuberculosis and Pregnancy. O. Pankow.—p. 838. C'td.
Conservative and Operative Treatment of Acute Pancreatitis. M. Kappis.—p. 842.
Skin Reactions in Neurosyphilis. B. Dattner.—p. 843.
*Etiology of Carcinoma of Cervix in Relation to Obstetric Trauma. W. Liepmann.—p. 846.
Abortion and Decrease in Birth Rate. S. Peller.—p. 847.
Insolation Apoplexy in Child with Congenital Syphilis. O. Saxl.—p. 849.
Benzine Therapy of Bronchial Asthma. J. Kairiukstis.—p. 852.
Value of Solution of Secondary Butylbrompropenylbarbituric Acid for Beginning of Anesthesia. M. Gladtke.—p. 853.
Treatment of Ulcer of Leg by Means of Parathyroid Extract. Agnessa Grünfeld.—p. 853.

Unrestricted Diet in Diabetes.—Stolte and his associates point out that before the insulin era the prognosis of diabetes was generally unfavorable, especially for diabetic children, who usually succumbed to the disease in from two to two and one-half years. The authors further discuss the value of insulin. It is a disadvantage that it is impossible to determine an exact equivalent of the number of units of insulin necessary to aid in the assimilation of a definite quantity of carbohydrates but too many undeterminable factors are involved. The carbohydrates are not always brought into a resorbable state in the same length of time, the motility of the stomach varies, and external factors such as weather conditions, change of seasons and periods of rest are likewise of influence. The result is that even if insulin and diet are carefully prescribed there is no guaranty that the metabolic equilibrium is constantly maintained from day to day. The rôle of psychic influences is especially important. The authors cite cases in which a reprimand in school or a depressing message led to marked disturbances in the carbohydrate metabolism of diabetic persons, producing either a sudden hypoglycemia or a hyperglycemia. It was also found that a too strict diet has a depressing influence on diabetic persons, and since such psychic influences tend to cause greater disturbances in the carbohydrate metabolism the authors attempted to treat their diabetic patients only with insulin and permit them the same diet to which they had been accustomed at home. As a result the mood of the patients became a much happier one and in spite of the larger quantities of carbohydrates that the patients ingested it was only rarely necessary to increase the doses of insulin. Curves illustrating the carbohydrate metabolism of the patients show that the use of insulin was not abused and that the patients received a physiologic diet. Following the administration of insulin the patients become like healthy persons and therefore can take the food of a healthy individual. Insulin is for the diabetic person more than a drug to be used in the moment of danger; it is capable of correcting the metabolism to a much greater extent than is commonly assumed. The treatment that the authors employ for diabetic persons is so simple that a differentiation between slight, moderate and severe diabetes is no longer necessary. Only during coma or during the precomatose stage do patients require special treatment. The authors think that any organ which is not exercised will gradually cease to function, and the pancreas will do the same in the absence of an adequate stimulation, that is, carbohydrates. The authors' usual procedure, when diabetic children are brought to the clinic, is as follows: The child continues to eat the food to which he is accustomed and the insulin is gradually administered until the glycosuria disappears. At first the child usually eats with greediness and for a while it becomes necessary to give larger doses of insulin than would be permissible for a prolonged period. Careful supervision is therefore necessary. General rules cannot be given; each patient has to be treated individually.

Etiology of Carcinoma of Cervix in Relation to Obstetric Trauma.—Liepmann attempts to answer the question whether the obstetric trauma promotes cancer and whether it explains the higher frequency of genital cancer in women. According to cancer statistics of 1910 the frequency of cancer of the male genitalia is 16 per cent, whereas in women it is 27 per cent. This indicates that the female genitalia are more susceptible to cancer. The author thinks that the female sex organs with the constant changes of menstruation, pregnancy, labor, puerperium, abortion, and measures for birth control, by which the epithelium is always disturbed and irritated, are predisposed to carcinomatous changes. Studies on a statistical material of nearly 9,000 cases of cancer of the cervix uteri convinced the author that it is most frequent in women who have given birth, their percentage being 90. When this is compared with the total number of the women, it is evident that cancer of the cervix is more frequent in women who have given birth. Other statistics have revealed that about one third of the women with cancer of the cervix uteri had previously had difficult labors with deep tears. The author thinks that the greater frequency of cancer of the cervix uteri in women who have given birth would become still more evident if the number of abortions and other intracervical interventions that are employed for the limitation of offspring could be counted, for it is probable that the trauma of abortion injures the mucous membrane of the cervix uteri still more than does a normal confinement, and the prevention of conception by means of pessaries is also harmful. In cancer of the corpus uteri, however, the obstetric trauma has not the same etiologic significance, for in this form of cancer the number of women who have given birth do not predominate over those who have not.

Zentralblatt für Chirurgie, Leipzig

58: 1425-1488 (June 6) 1931

Pyemia of Extremities Cured by Ligation of Vena Iliaca Communis Sinistra. W. von Rehren.—p. 1426.
Danger of Anaphylaxis Following Injection of Coli Serum. A. Peters. —p. 1428.
Spontaneous Rupture of Hemangioma of Liver. M. Karp.—p. 1435.
When a Meniscus of Knee Joint Becomes Visible in Roentgenogram. M. Schapiro.—p. 1436.
Isolated Avulsion of Epiphysis of Minor Trochanter and Equivalent Muscular Tear of Iliopsoas. W. Aberle.—p. 1439.
Aid for Suboccipital Puncture. A. Plenk.—p. 1443.
*Prevention of Postoperative Thrombophlebitis. Rupp.—p. 1444.
Multiple Fracture of Base of Skull and of Cranial Vault and Pneumocephalus: Cure. E. Geber.—p. 1446.

Prevention of Postoperative Thrombophlebitis.—Rupp points out that bandaging of the legs for prevention of postoperative thrombophlebitis has long been practiced in the case of varicose veins, but only since elastic adhesive bandages have been employed have the results been satisfactory. The favorable results that were obtained with the elastic adhesive bandages induced the author to employ them also in other cases. During the last ten months he saw to it that, in all persons recently operated on and in whom there existed some danger of postoperative thrombophlebitis, the legs, from the toes to the inguinal region, were wrapped carefully in rubber adhesive plaster. The aim was to eleminate dead spaces and the resulting stasis in the venous system. The result was that none of the 400 patients who were thus treated developed a thrombophlebitis or a pulmonary embolism. In the gynecologic department the prophylactic bandaging was done successfully in 110 cases. In puerperal women who had not undergone operative interventions it was done only in those who had varicose veins. In the conclusion the author states that he values this method highly and would no longer like to be without it. He hopes that this report will induce others to try it.

Vrachebnaya Gazeta, Leningrad

No. 8: 563-638 (April 30) 1931

*Etiology and Epidemiology of Influenza. G. A. Ivashintzev.—p. 567.
Clinical Aspects of Influenza. N. K. Rosenberg.—p. 575.
*Classification of Anemias. M. J. Livshitz.—p. 579.
*Hyperinsulinemia. P. S. Fedorov.—p. 585.
*Virus-Toxin. A. A. Sinitzky.—p. 592.
Fecundity of Women Working in Printing Plants. V. A. Schokhrin. —p. 595.
*Manoiloff's Reaction in Urology. G. S. Epstein.—p. 599.

Etiology and Epidemiology of Influenza.—Ivashintzev reviews the bacteriologic and epidemiologic aspects of influenza and stresses the necessity of an active study of the problem. In this direction he recommends that: 1. Clinicians and pathologists should carefully analyze and make clear the clinical place of influenza, making it characteristic as a nosologic entity. 2. Bacteriologists together with pathologists and clinicians should reveal the pathogenic properties of all micro-organisms that could be suspected as the exciting agents of influenza. 3. Epidemiologists should not abandon but make more exact the interpretation of all factors involved (infection and social aspects).

Classification of Anemias.—Livshitz outlines a new classification of anemias. He bases his classification on the definite constitutional and conditional factors that are present in various blood diseases. He considers two general groups of anemias: the genotypic and the phenotypic group. The author begins his classification with the definition of pernicious anemia, which he differentiates from aplastic anemia. The place of the constitutional factor in hemolytic icterus is not in need of any interpretation. The following type is the osteosclerotic anemia (Albers-Schönberg disease). The author questions his right to include the anemias of leukosis in the genotypic group, but decides finally in the affirmative because leukosis is a blastomycotic process; i. e., anemia is the result of ailments of this character. To the same category belongs the anemia of the so-called hepatolienal diseases, as cirrhosis of the liver, splenic anemia and Banti's disease. In the series of the so-called infantile anemias the author includes von Jaksch's anemia, the hypochromatic type of anemia, which so markedly resembles the classic form of hypochromatic anemia, chlorosis. Finally, the latest type of anemia, in which its constitutional genotypical character is markedly prominent, is Gaucher's disease. To the second group of anemias, preferably of the phenotypical, conditional character, belong all anemias that originate as a result of some definite influences on blood and on blood-forming organs. In this group the author includes all anemias that show a partial manifestation of the general loss of nutrition in the organism. This group is divided by the author into three subgroups: (1) posthemorrhagic anemias, (2) pernicious anemias, and (3) hematoxic anemias. The latter is caused by such phenomena as various poisons that are circulating in the blood, as arsphenamine, aniline, mercury and lead; also physical agents, as roentgen rays and radon. All diseases that are provoked by various bacteria, protozoa or intestinal parasites provoke anemia, at times of a highly marked character, that is difficult to treat. The author concludes by stressing the fact that his classification is well outlined not theoretically only, because it possesses a great value from the practical point of view.

Hyperinsulinemia.—Fedorov analyzes the results of surgical intervention in cases of an entirely new entity named hyperinsulinemia. He states that to the Russian surgeon Oppel belongs the honor of giving the first comprehensive description of it and of performing an operation on a patient with a typical hyperinsulinemia. Oppel's surgical treatment was based on the assumption that among many other therapeutic measures in the treatment of hyperfunctioning of the endocrine glands should also be included resection of a part of the diseased organ. The symptoms of hyperinsulinemia are lowered blood pressure, hypoglycemia, increased tolerance of blood to sugar assimilation and obesity. In the author's opinion the disease is caused by hyperfunctioning of the islands of Langerhans. He states that severe forms of hyperinsulinemia often develop rapidly and even end fatally. He cites in most instances the observations of American investigators, who extensively used resection of a part of the gland in all similar cases. There are two conditions that may be encountered on the operating table: one may find a tumor of the insular apparatus or there will be no changes in it whatever. The author concludes by suggesting that surgical intervention be not delayed as it is the only means of saving the life of the patient; he recommends that at least an exploratory laparotomy be performed because it is not yet possible to make a preoperative diagnosis of a tumor of the pancreas.

Virus-Toxin.—Sinitzky states that the method of producing a local immunity to scarlet fever with virus-toxin, proposed in 1927 by Belonowsky and Miller, has at present a wide application. The method of producing virus-toxin is similar to that used in the obtaining of Dick's toxin from the first generation of streptococcus. The author studied the stability of the biologic properties of streptococcus in vitro under the influence of virus-toxin. He draws the following conclusions: 1. Virus-toxin sharply retards the growth of hemolytic streptococci in vitro. 2. Under the influence of virus-toxin the biologic properties of streptococcus are markedly inhibited. 3. With regard to some strains, virus-toxin produces a lytic action that provokes somewhat weakened bacteriophagia.

Manoiloff's Reaction in Urology.—Epstein studied the action of Manoiloff's reaction in its application in urology. His conclusions are as follows: 1. Manoiloff's reaction performed on the remainder of serum of blood obtained for Wassermann reaction (100 cases) gave correct results in 92 per cent. 2. In clinical material that consisted of 133 urologic cases Manoiloff's reaction gave correct results, corresponding to the sex, in 57 per cent, and incorrect ones in 43 per cent. 3. Hypertrophy of the prostate gives a corresponding reaction in 73 per cent and a wrong one in 27 per cent. Thus there is some parallelism between the results of Manoiloff's reaction and the male incretory apparatus, because despite the pathologic condition of the prostate and urinary tract there was no impairment in the amount of male hormone in the blood. 4. In all chronic inflammatory processes of the epididymis, Manoiloff's reaction gives correct results. They are not correct in the acute cases only. With regard to the tuberculous condition of the epididymis, Manoiloff's reaction gave incorrect results in all cases studied. 5. The diseases of the upper and lower urinary tract do not modify the correct results of Manoiloff's reaction.

Acta Medica Scandinavica, Stockholm

75: 193-401 (May 26) 1931

Pulmonary Abscess Healed After Operation: Case. A. Troell.—p. 193.
*Pernicious Anemia and Carcinoma. F. Saltzman.—p. 198.
Cholecystography in Acute Hepatitis. F. Nord.—p. 205.
Disturbances in Atrioventricular Bundle. C. J. Rothberger.—p. 217.
*Treatment of Bothriocephalus Anemia with Liver, Liver Preparations and Stomach Preparations. G. Becker.—p. 227.
*Liver Therapy in Anemias with Achylia. S. Hesser.—p. 241.
Some Experiences with Treatment by Oleothorax. A. Gullbring.—p. 258.
The Sahlgren Agglutination Test: Some Results in Cases of Pulmonary Tuberculosis. N. Eklund.—p. 277.
Six Years' Experience with Treatment of Lupus Erythematosus with Gold Compounds. J. Strandberg.—p. 296.
Guttadiaphot Test as Diagnostic Aid to Detect Activity in Pulmonary Tuberculosis. T. Nyrén.—p. 318.
A Case of So-Called Sprue. A. Engel.—p. 341.
Influence of Electrolytes on Suspension Stability of Red Blood Corpuscles. B. Enocksson.—p. 360.

Pernicious Anemia and Carcinoma.—Saltzman reports the case of a woman, aged 69. An ulcerating carcinoma of the cervix uteri was clinically cured by radium treatments. Two years later a typical pernicious anemia developed, which ended fatally after one year. The necropsy corroborated the diagnosis pernicious anemia and microscopic examination of the scar on the cervix revealed small islands of carcinomatous tissue, but there were no other signs of carcinoma. On the basis of this case and of others that are reported in the literature the author considers it improbable that a pernicious anemia is the cause of a carcinoma or, vice versa, a carcinoma the cause of pernicious anemia. He thinks that, if the concurrence of the two diseases is not merely accidental, one could assume that they are coordinated; that is, that the same conditions predispose the patient to the two conditions.

Treatment of Bothriocephalus Anemia with Liver and Stomach Preparations.—Becker points out that the blood picture of the anemia developing in patients with *Bothriocephalus* infestation is like that of pernicious anemia. For this reason great efforts have been made to throw light on the pathogenesis of *Bothriocephalus* anemia. However, as yet it is not known why and in what manner the tapeworm causes a pernicious anemia in some patients. With the introduction of liver therapy and the treatment with stomach preparations the study of the pathogenesis of pernicious anemia has entered a new era, and the question arises whether these new therapeutic methods will improve the blood picture of *Bothriocephalus* anemia just as it does that of the cryptogenic pernicious anemia, without first necessitating expulsion of the tapeworm. The author treated eighteen cases of *Bothriocephalus* anemia with liver, with liver preparations, with the two combined and with stomach preparations without first expelling the tapeworm. In one case the worm treatment was given first and then liver treatment was instituted. He reaches the conclusion that liver, liver preparations and, although to a lesser degree, stomach preparations effect cure of the anemia even if the tapeworm has not been expelled. With regard to whether the worm treatment should be given as soon as *Bothriocephalus* anemia has been recognized, or whether the anemia should first be counteracted by liver therapy, the author states that if the patient's general condition is fairly good the worm should be expelled first, for that is the causal therapy. However, if the condition is poor, liver therapy and blood transfusion should be given first and, after the general condition has sufficiently improved, the worm treatment can be commenced. Following expulsion of the worm it is advisable to continue the liver treatment in order to hasten the complete cure of the anemia.

Liver Therapy in Anemias with Achylia.—Hesser gives a summary report of thirty-three cases of anemia, all of which were combined with achylia. The more detailed statements regarding the type of anemia, the treatment and the result of the treatment can be summed up as follows: 1. Thirteen patients with pernicious anemia were treated with liver, iron and arsenic. One of these patients did not show signs of remission but died. In all the other cases improvement was noted, which is characteristic after liver treatment of pernicious anemia. 2. Four patients with pernicious anemia were treated with preparations of hog stomach. The remission was of the same type as that noted in patients treated with liver. 3. Eight patients with secondary anemia were treated with liver, iron and arsenic. The results were not as favorable as those obtained with the same therapy in patients with pernicious anemia; the remission was only half as rapid. 4. In the other eight cases of secondary anemia, iron and arsenic, but no liver, were given. The result of this procedure was the same as that obtained in the patients mentioned under 3. Finally, the author reports a case of severe secondary anemia with achylia or subacidity in which the etiology could not be determined. Treatment with liver or with hog stomach preparations was of no avail; however, blood transfusion and iron and arsenic medication led to complete remission.

Finska Läkaresällskapets Handlingar, Helsingfors

73: 325-420 (May) 1931

*Adiposogenital Dystrophy, Diabetes Mellitus and Albuminuria: Neurogenic Albuminuria. R. Ehrström.—p. 325.
*Pathologic Changes in Epilepsy. H. Marcus.—p. 335.

Neurogenic Albuminuria.—Ehrström states that theoretically albuminuria on a neurogenic basis must be considered in hypophyseal disorders with glycosuria and albuminuria, and describes two cases, one personal, in which the cerebral origin seems probable. In both cases there developed, in connection with a process in the pituitary body (indicated by changes in the sella turcica and choked disk), adiposogenital dystrophy, diabetes mellitus, and albuminuria.

Pathologic Changes in Epilepsy.—Marcus has examined the brain in forty cases of epilepsy, without results as yet in eight, but with establishment of macroscopic and microscopic changes, reported in full, in thirty-two. The location of the changes varied greatly. The pathologico-anatomic results seem to him at present to support the assumption that the epileptic attack may have its basis in an excitation of the cerebral cortex and in a release of the more uncontrolled explosive activity of the deep motor ganglions, caused by an interruption due to a disease process in the connecting tracts between the cortex of the brain and its deeper portions. The article contains fifty-seven illustrations.

Ugeskrift for Læger, Copenhagen

93: 523-550 (May 14) 1931

Accident Insurance Cases: XX. Treatment of Lesions of Eye. O. Gertz.—p. 523.
*Early Differential Diagnosis Between Tuberculous Meningitis and Nontuberculous Meningitis. E. Schiødt.—p. 526.
*Action of Hypophysis After Castration Shown by Experiments with Implantation. S. Emanuel.—p. 535.

Differential Diagnosis of Tuberculous and Nontuberculous Meningitis.—Schiødt's material comprises 181 cases of tuberculous meningitis, 116 of acute epidemic encephalitis, 97 of acute anterior poliomyelitis, 25 of secondary serous meningitis, and 51 of primary serous meningitis. He states that the history of tuberculosis appears so often in adults with tuberculous meningitis and so rarely in the other forms of meningitis that it affords some support for the diagnosis of tuberculous meningitis; this does not hold for children. Characteristic peculiarities in the relation of pulse and temperature observed in some cases of tuberculous meningitis and not in the other disorders may aid in the diagnosis of this condition. In examinations of the spinal fluid, its appearance and the kind of cells may be of definite help in the differential diagnosis between tuberculous and purulent meningitis, and in two thirds of the cases of tuberculous meningitis the albumin and globulin content of the spinal fluid was higher than 20 and 2, respectively (Bisgaard), a condition found at the most in only one third of the cases of purulent meningitis.

Action of Hypophysis After Castration.—Emanuel describes experiments in which a considerably greater effect was obtained with hypophyses from castrated rats than with normal hypophyses. The experiments indicate that castration leads to an increase in the quantity of both the follicular and the luteinizing hormones, but with a change in their relative quantity, the content of luteinizing hormones becoming relatively greater, presumably because this hormone is retained while the follicular hormone is quickly eliminated. Various conditions indicate that the basophilic cells with vacuoles are important in the formation of hormones and it is assumed that at all events the luteinizing hormone is produced there.